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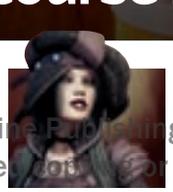

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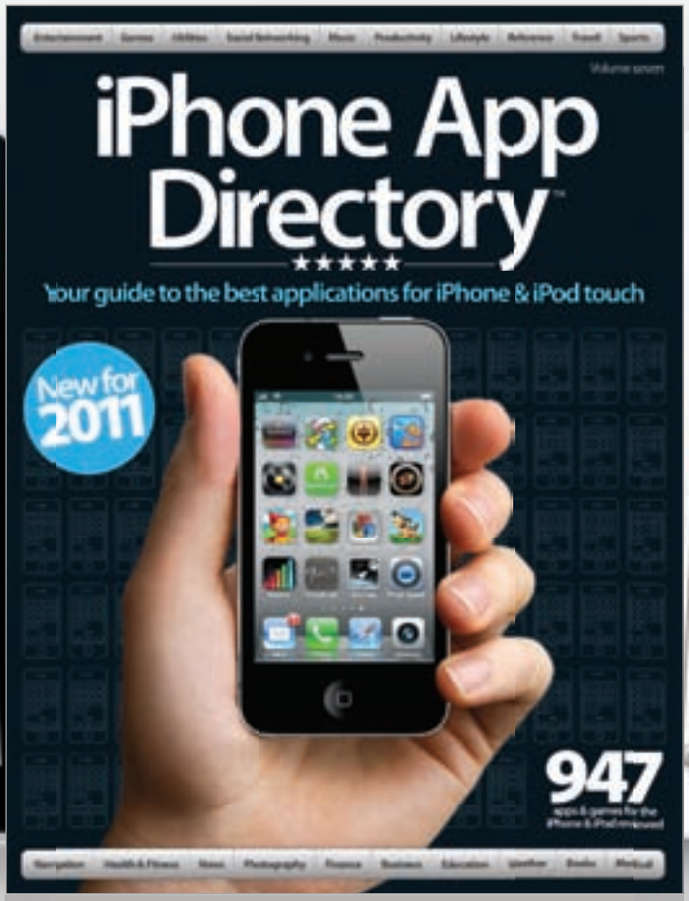

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Artist info

Daniel Schmid

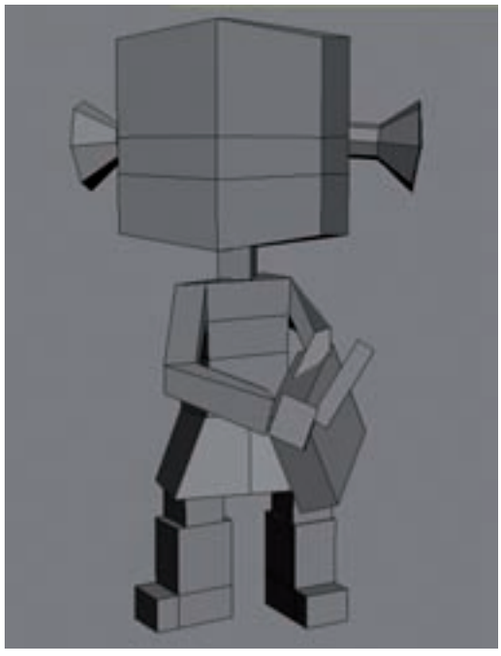
Personal portfolio site
http://danielvfx.cgsociety.org

Company site
www.exododw.com

Country Mexico

Hardware used
3ds Max, mental ray, Photoshop, ZBrush

Well Done is our cover image this issue, created by Daniel Schmid and other colleagues at his company, ExodoDW. Founded by a group of artists in 2006, ExodoDW (**www.exododw.com**) specialises in 3D character animation with proprietary content and tool development. The projects are managed all the way from concept design, texture painting, modelling, character setup through to animation, shading, lighting, rendering, compositing and postproduction. Having a boutique-like workflow, the company has managed to develop high-profile projects in animation and visual effects because of a specialised workforce, attracting clients from brands based in Mexico, Canada and the US.



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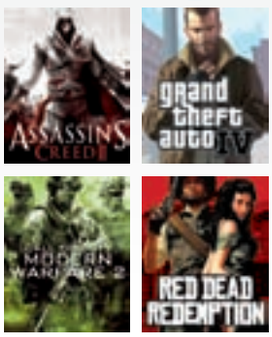

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6. The chance to see your art in the mag!

Back in the early Nineties, Digital Domain created Nuke, a compositing software program for the movie industry. Realising that being a software developer wasn't really their thing, the guys at DD sold Nuke to The Foundry to develop. And this month, by a curious twist of fate, we have features with both Digital Domain and The Foundry in the same issue.

Meanwhile, the time has come for me to disembark from the good ship **3D Artist**. Because of the health of my son, I will be working from home for now. It's been an amazing 18 months at **3D Artist** and I hope you've enjoyed the journey as much as I have.

Duncan Evans, Editor

This issue's team of expert artists...

Dave Crookes

Dave has been busy finding out what you can learn from home this month in a feature for those who didn't do 3D at uni

Christian Darkin

Go-to guy for reviews of the latest products, we give only the toughest jobs to Christian. This issue: stereoscopic 3D

Paul Francis

Paul is our Poser expert and comes up with all manner of tips and ideas to make your Posing life as easy as possible

Lance Hitchings

Lance runs a design studio in the States, and also provides solutions for all your general Maya-related problems

Dominic Davison

Our resident Vue expert creates images that mortals can only dream of. Dom is here to reveal all about Vue

Daniel Lovas

The guy with CINEMA 4D in his DNA is a sci-fi enthusiast and can solve any problem you may encounter

Daniel Schmid

Daniel explains how to create a character so cute you'll have Pixar on the phone offering you a job the next day...

Antony Ward

Mixing Fifties retro styling with the latest modelling techniques, Antony has a style all his own. Here you can see it in action

Majorgaine

Author of the first ever DAZ tutorial in the mag, Majorgaine leads us through the modelling process and the final details

Ryan Knope

When he isn't busy in his architectural design studio, Ryan is available to answer questions on 3ds Max and arc-vis

Zoltan Miklosi

Another tutorial from Zoltan who is master of Blender, as well as the universe in general. He's the top guy for fabrics

Scott Gibson

Demonstrating his retro graphic design skills, Scott puts 3D into Photoshop and comes up with a flash back to the Eighties

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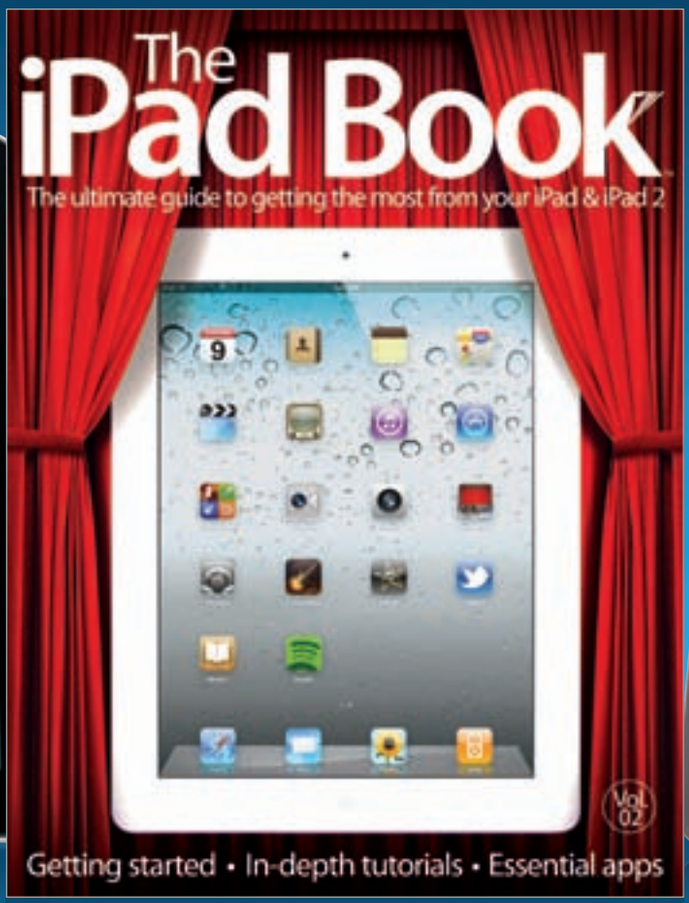
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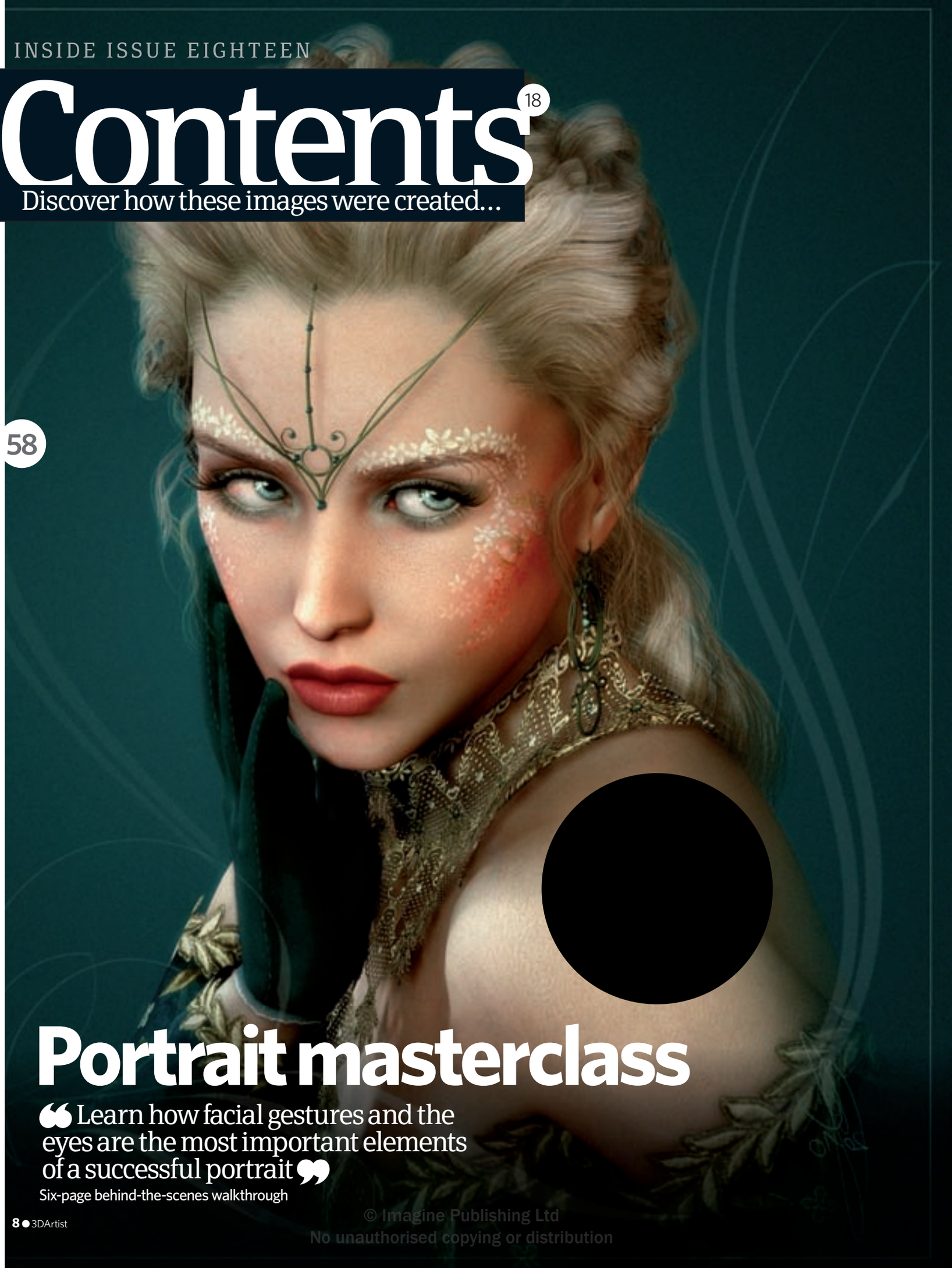

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Portrait masterclass

“Learn how facial gestures and the eyes are the most important elements of a successful portrait”

Six-page behind-the-scenes walkthrough

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“I needed a character that didn’t go down the cyborg or mutant hybrid route, which has been done before”

Antony Ward, on mixing retro style with character design. **Page 52**

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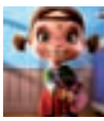

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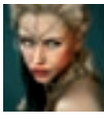

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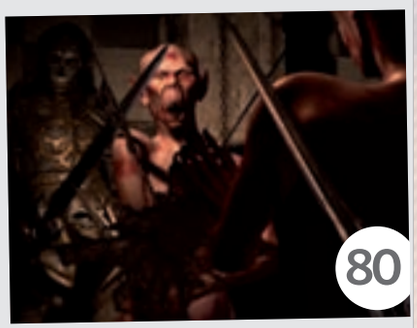

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Video tutorials: Blender and Maya

Over 90 minutes of video tuition for using Blender and creating metal effects in Maya

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On the Disc

Fabric simulation

Source files Turn to page 66 for full tutorial

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There’s even more inside...

Turn the page to discover the interviews, reviews, industry advice and more that we’ve packed into this issue...

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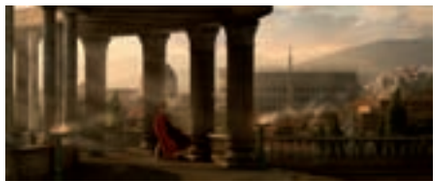

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"Whether you are a beginner or a professional, there is something out there to take your art to the next level"

David Crookes, Teach Yourself 3D feature. Image by William Vaughan. **Page 36**

workspace 3D

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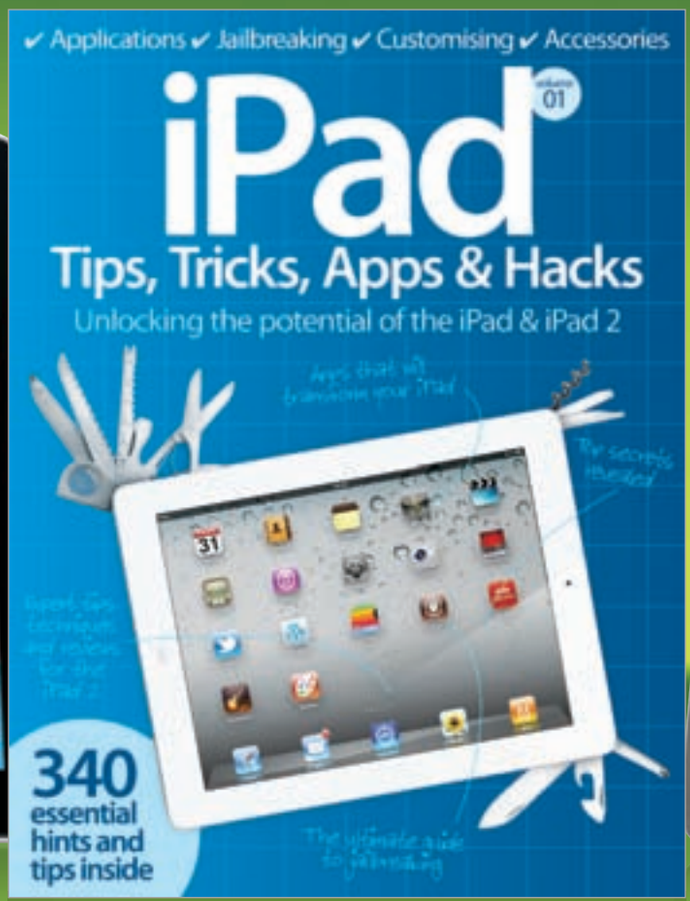

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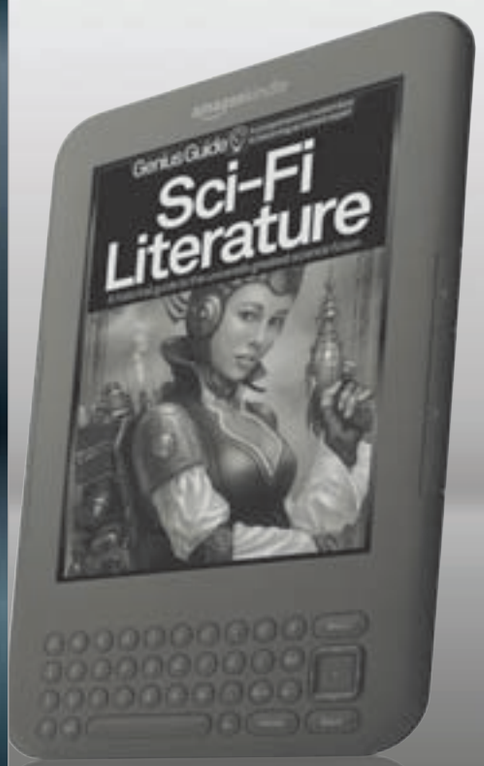

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WELCOME TO THE GALLERY

Nine pages of great artwork from the 3D community

Images we love!

Artist info

Rudolf Herczog

3DArtistonline.com

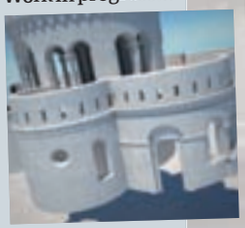
Username polyvertedges

Personal portfolio site
www.rochr.com

Country Sweden

Software used CINEMA 4D, Maxwell Render, Photoshop

Work in progress...



"A project I've been working on for some time, which I modelled using tourist photos"

Rudolf Herczog, *Fisherman's Bastion,* 2010

Featured artists

Rudolf Herczog

A highly detailed arc-vis of the Fisherman's Bastion, Budapest

Hodong La

Don't look into her eyes – a modern twist on the famous Gorgon

Sergej

It's behind you! A playful model of a cave beast and a gormless soldier

Dmitry Glazyrin

Gladiators, ready! An evocative snapshot of Ancient Rome

Uwe Jarling

Verne's Nautilus reimagined and plunged into stormy seas

Neil Maccormack

A futuristic vehicle launching from a forest-based hangar

Andrzej Sykut

A dynamic scene of a sniper seeking her target in a cargo bay

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Artist info

Hodong La

Personal portfolio site
www.hodings.com
http://blog.naver.com/lahodong
Country South Korea
Software used
3ds Max, Photoshop

“This is a version of the famous Medusa monster, but created in my own particular style”
Hodong La, *Medusa,* 2010

The team Loves

“There is nothing overt about this image and it is the simplicity of style that makes it great”
Lynette News Editor

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The idea was born by fluke while working on another project. I liked the humorous touch in the well-known 'peace' greeting in light of the beast in the background. Everybody interprets the scene in their own way, which is what I intended. After the sketch on paper followed a modelling of the figure from clay, so I could better see the characters' positions and movement. The work was done in modo and given finishing touches in Photoshop **Sergej,** *Peace,* 2010

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A tired Praetorian watches as a crowd of people move to the Colosseum, who like the birds above, crave the brutal spectacle promised in the arena. I've long wanted to create a piece that reflects the history of the Roman Empire. But in the process of work, it departed from historical realism and became more historical fantasy. Modelled and textured in 3ds Max, the character was done in ZBrush and the final treatment in Photoshop. The hill and sky backdrop is a matte painting I created **Dmitry Glazyrin,** *Praetorian,* 2009

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Artist info

Dmitry Glazyrin

3DArtistonline

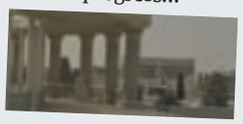
Username Glazyrin

Personal portfolio site http://ujean-glazyrin.com

Country Russia

Software used 3ds Max, V-Ray, ZBrush, Photoshop

Work in progress...



The team Loves

"A very evocative scene with beautiful use of lighting. I like how the calm scene surrounding the Colosseum contrasts to the violent events happening inside it"

Jo Editor in Chief

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“For a long time I had the idea to make a Nautilus image, but I wanted mine to have a different look than what usually comes to mind thinking about Captain Nemo and his ship. So I designed a very unusual, mysterious and dangerous-looking ship and placed it in a moody atmosphere to get the look I wanted”

Uwe Jarling,
Nautilus, 2010

Artist info

Uwe Jarling

Personal portfolio site
www.jarling-arts.com
Country Germany
Software used
3d-Coat, ZBrush, Vue, Photoshop

Work in progress...

The team Loves

“My favourite part of this image is the moonlit sky, with the stars peeping through. It sets the perfect mood”
Jo Editor in Chief

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> Another model (hopefully) in the Chris Foss style, which I seem to be doing a lot these days. Fully modelled in LightWave and final retouching done in Photoshop

Neil Maccormack, *Saleve,* 2010

Artist info

Neil Maccormack

Personal portfolio site
www.bearfootfilms.com

Country UK

Software used
LightWave 3D, Photoshop

Work in progress...

The team Loves

> Neil's images are always unique and this one is no exception, merging 3D with a painterly style

Lynette News Editor

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The team Loves

"The perspective coupled with the unusual composition helps to make this a very dramatic image"

Lynette News Editor

Artist info

Andrzej Sykut

Personal portfolio site
www.azazel.carbonmade.com
Country Poland
Software used
3ds Max, Wings 3D, ZBrush, Photoshop

Work in progress...

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“Do it and you are free. Just one shot. Easy shot. Destroy the cargo. You won’t hear from us again after that. What they didn’t tell her was that the gold-wrapped mysterious thing in the cargo hold will change the world for the better. Sometimes not pulling the trigger is as difficult as pulling it…”

Andrzej Sykut, *Secret Agent,* 2009

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For the love of war

Game artists pull troops for an unofficial Dominance War

A creative war broke out in the game artist community when news hit that Dominance War V was to be postponed until 2011. Lamont Gilkey, noticing that everyone seemed to be somewhat out of sync without the expected battle, broke out a civil war on the GameArtisans forum to wake up sleeping creatives.

Dreams and Nightmares was the theme of the unofficial Dominance War 4.5, with artists challenged to create a 2D concept, 3D character or 3D environment, showing their work in progress in a forum thread. With maximum tri and poly counts to adhere to, and no prizes but the thrill of the competition, game artists came together to offer critiques, encourage others and generally have a good time joining in while waiting for the next official Dominance War. Forum member, Tommy Wong Choon Yung was Lamont's right-hand man in organising the event.

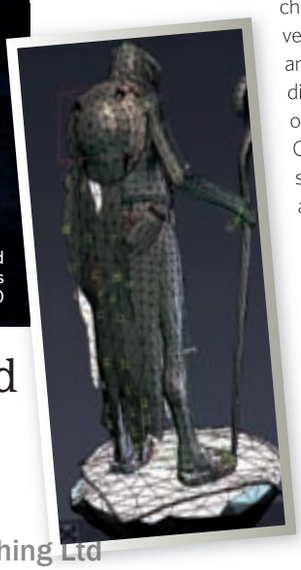
"It was really great to put together something like this, although it's a fraction of what is required of competitions like the real Dominance War, Unearthly or Comicon Challenge," Lamont told 3D Artist. "Contests like these are nothing without support from the community, judges and most important of all, the participants."

Jacque Choi, a character artist of ten years who has worked on various titles such as *Far Cry 2*, was one of five judges who selected Erigo Grigorash's hellish *Spirit of Poverty* as the winner of the character category. "This piece demonstrated the strongest technical ability, and the most dramatic lighting. The character design comes across as very creepy, and employs an amazing use of subtlety in the diffuse texture, with a strong sense of material differentiation," Jacque Choi commented. "I felt like the silhouette could have been pushed a little further, but this piece is just incredibly well done, and deserving of the top spot."

Grand champion winner was forum member, David Kang. To see his and the other winners of the character, environment and concept categories, visit www.gameartisans.org/forums/showthread.php?t=14810.

Spirit of Poverty was Erigo's entry to the unofficial game art challenge, which took first place in the character category

Artists had to submit one wireframe and two beauty renders of their characters posed no larger than 1,200 x 1,200



3DArtist online.com

Enjoy game art challenges? Have suggestions for future art wars you'd like to see take place between the 3D communities? Share your thoughts and suggestions at **www.3dartistonline.com/forum**

> "When I first saw that guys on GA wanted to organise an unofficial DW, I decided to join in... Also a bit of practice before DW5 sounded a great idea!" **Erigo Grigorash**

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3D events update

A guide to forthcoming events in the 3D art industry calendar

Digital Asset Management Conference & Expo

Date 23-24 September
Location New York, USA

This conference will offer knowledge on current workflows and best practices, insights into future advancements, as well as the opportunity to meet industry leaders and professional colleges.
http://createasphere.com/En/home/1212.html

Entertainment Technology Exposition

Date 21-22 September
Location New York, USA

The Entertainment Technology Exposition is where future technology and creative vision meet. This two-day event will host panel discussions and workshops, as well as a show floor that'll bring technology to life!
www.createasphere.com/september

APE

Date 16-17 October
Location San Francisco, USA

APE is the popular and alternative comics show that has become a must-attend event. APE is focused on creativity, showcasing indie artists and publishers doing what they love – pushing boundaries.
www.comic-con.org/ape

Three Area lights were used from the front/bottom, plus two Spot lights for the back lighting

Masterpiece

Cult classic

Taking a long overdue break, this artist turned to classic horror as inspiration for new work

Sebastian Schoellhammer www.sebscorner.org

Sebastian temporarily quit his job in the Japanese entertainment industry to take some time out and see the world. With a continued passion to create and learn as much as he can, when he saw a classic movie monsters contest on the Sinister Circle forum, he was inspired to re-create Werner Herzog's Nosferatu, wanting to capture the melancholic nature of the character using Maya, ZBrush, Mudbox and mental ray. "A long time passed and recently I finally got some time and motivation for doing some textures and rendering," Sebastian said. "I might do a bit of animation but I guess that'll be later!"

Model on the move

Sculpt on the go with this complete 3D modelling application for the iPhone, iPod touch and iPad

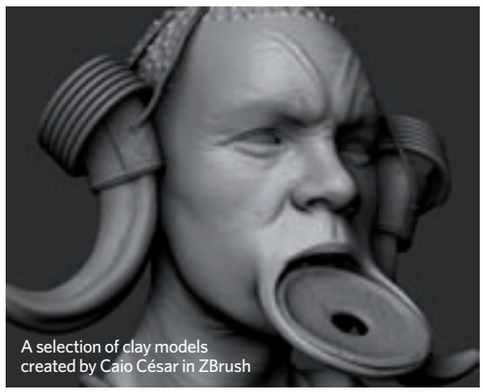
iSculptor is compatible with the iPhone, iPod touch and iPad

Utilising the strengths of touch technology, the iSculptor app allows you to create and modify 3D objects anywhere, anytime. iSculptor features everything you need to select vertices and polygons, make marquee selections, align and merge, extrude and scale, and you can view in either wireframe or shaded views. The application does have limitations, but with its sister product, iSculptorNet, you can export your models out of iSculptor and into your favourite 3D modelling program as an OBJ file. Visit **www.lostpencil.com** for more details and to purchase iSculptor for your device.

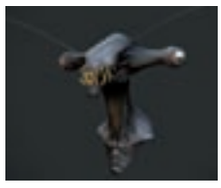
And the winners are...

In issue 12 we ran a competition for you to win a copy of Vue 8

3D Artist readers entered in their masses to win a copy of Vue 8 in our e-on Software-sponsored competition. David Stephenson in the UK was randomly selected as the first lucky winner of Vue 8 Infinite, and Philip Myers of Australia and Shonn Everett from the USA both won themselves a copy of Vue Complete. Prizes are being shipped from 3D Artist HQ to the winning three, who will no doubt be mastering terrains and conjuring up ecosystems of trees and plants in no time. We look forward to seeing what they come up with!



A selection of clay models created by Caio César in ZBrush



3D Sketchbook

Drawing with clay

When Caio César isn't teaching ZBrush, he finds it useful for quick idea generation

Caio César Brachuko Fantini http://caiofantini.blogspot.com

Caio thinks that some basic drawing experience is essential for 3D modelling. With a background in traditional art, including drawing and sculpture, he now teaches at a 3D animation school in Brazil using ZBrush and Softimage.

Using ZBrush to develop ideas quickly, he finds the Move brush particularly useful to give shape to models, and says that checking the silhouette in flat colour is very important when looking to define a design. He told 3D Artist, "For fine details, like wrinkles and scales, I like marking them with the Elastic brush – you can do it with the Standard brush, too, but personally I think Elastic gives better feedback."

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Free 3D Resources

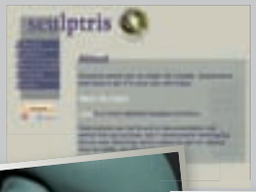
Your guide to what's free!

Enthusiastic sculptors will love these free applications, downloads and textures

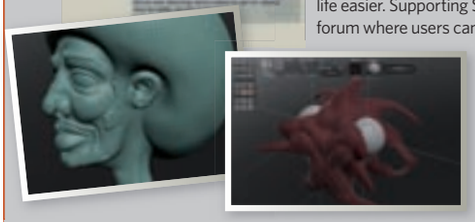
Sculptris

Get started in sculpting with this free 3D application

Web: www.sculptris.com



Developed by Tomas Pettersson, Sculptris 1.01 is a free application for all. It comes with documentation on how to get the most out of the program, with handy shortcuts and tips to make life easier. Supporting Sculptris is a forum where users can post questions and seek answers. Happy sculpting!



Pixologic Download Center

ZBrush users can benefit from donations by other artists at the Download Center

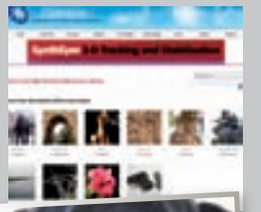
Web: www.pixologic.com/zbrush/downloadcenter

Pixologic has created libraries of fantastic free MatCaps, Alpha materials and texture maps that have been kindly donated by the community of ZBrush artists. Also for free download is a selection of powerful plug-ins and ZScripts developed by Pixologic and ZBrush users. Discover what they can do for your sculpts!

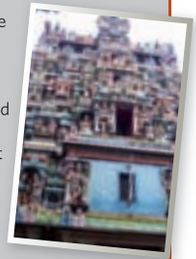
CGArena

Free hi-res references and textures now at CGArena

Web: www.cgarena.com/freetextures



CGArena has thrown its hat into the free texture arena. A new section on the website is now dedicated to bringing artists hi-res images that currently include animal references, photographs of buildings, ground textures and more. A modest collection at present, we hope to see more added in the future.



Student of the Year

cgCoach reveals the winners of its Computer Graphics Student Awards which sought the next generation of creative talent

Student of the Year winner, Maximilian-Gordon Vogt created *The Hunter* for his modelling demoreel at Vancouver Film School

Students were offered the chance to showcase their talents and kick-start their careers with the CGSA. Up for grabs for the first-prize winner – Student of the Year – was an internship at Framestore, a WS1400 workstation, ZBrush 4, Poser Pro, Silo Pro, as well as magazine subscriptions, including a 12-month sub to 3D Artist! Excellence categories in modelling, texturing, rigging/TD, lighting, animation, FX, compositing and concept art, as well as School of the Year and the Coach's Choice, meant there were ten winners in all, each winning a share of the $67,000 pool of prizes.

Student of the Year went to Vancouver Film School's Maximilian-Gordon Vogt, who the judging panel believed to showcase the best overall skills – creative and technical. See the winning demoreels at www.cgcoach.com/beta/cgsa.

behind the scenes

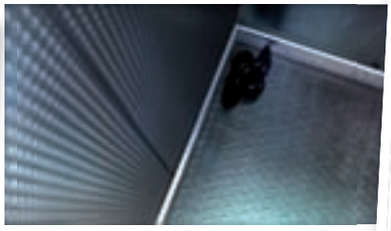
The tapestry of life

Hovering between fiction and reality, 'Line' is a short film created at Université Paris 8 by four dedicated students

Laurianne Proud'hon, Ludovic Ramisandraina, Jean-Luc Verschelde and Nicolas Majumder http://line-movie.com

'Line' is a CG animation that contemplates life. Its dreamlike qualities mix with a realistic universe as tiny creatures trace a path from birth to death. The goal was to suggest human presence rather than to try and re-create human forms in 3D; it's this mix of hyperreal elements and CG characters that bring a sense of poetry and beauty to an otherwise dark and heavy subject matter.

Using Maya, Fusion and mental ray, 99 per cent of the film is CG. Ludovic was responsible for the modelling and animation of the creatures, and the particle dynamics (rain, grass, etc), while Laurianne was dedicated to texturing and compositing, working to translate each scene into a unique atmosphere. Adding to the production team was Jean-Luc, their sound designer, supported by Nicolas who composed the music. "From the birth of the idea to the finalisation of the film, the production of 'Line' took six months," Laurianne told 3D Artist.

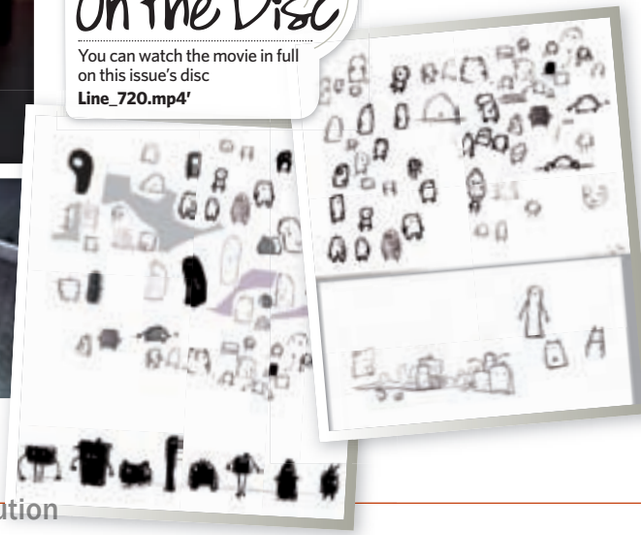


Every scene had to be researched for the right composition, lighting and materials

On the Disc

You can watch the movie in full on this issue's disc

Line_720.mp4'



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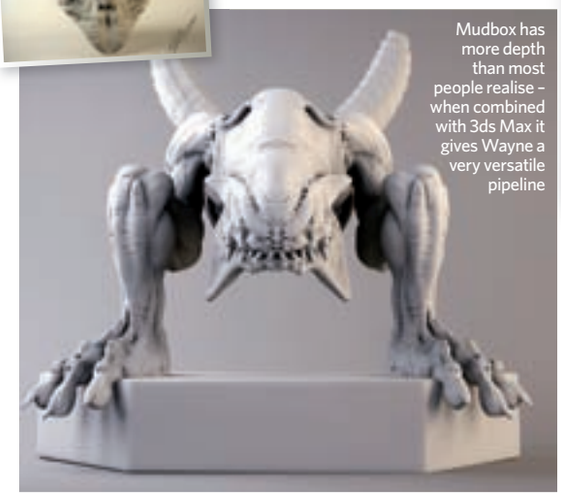
Artist spotlight

Monster mesh

Workaholic, insomniac and Mudbox expert Wayne Robson considers himself to have the best job in the world: making monsters

Wayne Robson www.dashdotslash.net

Mudbox is at the centre of Wayne's 3D universe. Having trained many in the use of the software through tutorials, live events and via his website www.mudboxhub.com, Wayne is a community favourite who can be found sculpting at most hours of the day. Attracted to the darker side of life and art, most of his creations could be considered angry or strange looking, but digital sculpting for him is an outlet, offering both freedom and a challenge. "My art is the product of who I am," Wayne told 3D Artist. "As long as I'm having this much fun, there's no chance I'll ever give digital sculpting up!"



Mudbox has more depth than most people realise – when combined with 3ds Max it gives Wayne a very versatile pipeline

Software shorts

Get the lowdown on updates and launches

Learn Vue 8.5 for free

A personal learning edition (or PLE) of Vue 8.5 has been released, which allows new users to create stunning and realistic 3D environments – and best of all – for absolutely nothing! It is fully functional, but is of course for personal, noncommercial work projects only. You can download it right now at no charge if you visit www.vue8.com/ple.

ArtRage 3 Studio Pro

ArtRage 3 Studio Pro has been introduced to the UK. It's simple to use and offers artists the ability to replicate traditional media on a digital canvas. This version is powerful enough for professionals, and at just £58/$80 it's a cost-effective digital painting solution. Visit **www.artrage.com** and head over to page 92 to read our review.

3DArtist 19
www.3Dartistonline.com
Practical inspiration for the 3D community

What's in next issue

Red Sonja
Antony Ward
Find out how Antony created this striking image

Learn how this incredible image was created

Issue 19: on sale 18 August

To buy your copy, visit www.imagineshop.co.uk

Tools of the trade

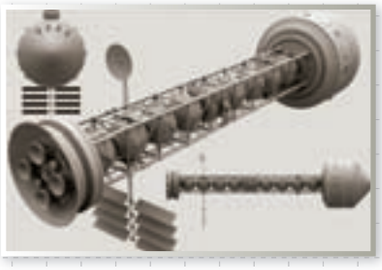
SILO

Use alone or as part of a 3D pipeline

Switch between organic and hard surface sculpting, effortlessly. Available for both Windows and Mac OS, Silo is used worldwide at various top studios as both standalone software and in 3D production pipelines for everything from characters for games and films, to architectural studies.

Silo is a polygonal and subdivision surfaces modelling application that has been finely tuned to users' needs, making it a tool that can be adopted into almost any workflow. It comes in Professional and Core versions, with Core being more suitable for students and hobbyists. For the pros, Silo offers the toolset with advanced features for UV editing, displacement painting, retopologisation and more.

What's most surprising is its price: just $159 for the full Professional product and $99 for the Core version. Throw in the added bonus of a lively forum where the product developers are active and offer public betas and free updates, and it certainly seems a wise investment. To try it for free, visit www.nevercenter.com.



Silo Professional gives access to everything Silo has to offer, whereas Core is great for those looking for robust modelling tools on a budget

3DArtistonline.com

Create your gallery, browse the artwork, chat with experts and artists and get tips and techniques at

www.3dartistonline.com

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Have your say

Write, email or use the website forums to get in touch about the magazine, your problems or triumphs

Send your letters to...

Email the team directly with your letter
3dartist@imagine-publishing.co.uk

Log in and leave your comments on the forum
www.3dartistonline.com/forum

POST TO:
The Editor, 3D Artist,
Imagine Publishing,
Richmond House,
33 Richmond Hill,
Bournemouth,
Dorset
BH2 6EZ, UK

BMW, Valencia, Spain
A BMW model composited into a photograph of Valencia by Daniel Presedo

Photoshop does 3D

Greetings, 3D Artist, I love your magazine and appreciate all the content you give away on the CDs. I use many of them for testing Photoshop 3D features. Today I used the BMW model and imported it into one of my photographs from Valencia, Spain. I modified the materials with the ones in Photoshop and did a final raytrace render. It took about 20 minutes to complete the whole project, with ten minutes to set up. The setup included moving an Infinite light, adding an Image Based light and modifying the materials. Once I let it render for a few minutes, this was the scene I was left with. I hope one day someone can do a tutorial on how easy this was and reveal to other artists that 3D is very approachable in a very familiar application.

Daniel Presedo, Adobe Photoshop quality engineer, by email

Thanks for that, Daniel, I'm sure we'll be covering these Photoshop features in upcoming issues.

Still life

This piece is inspired by the work of Caravaggio and his followers. The idea behind it was to experiment with simple shapes in order to focus on texture and lighting. I've tried to keep the basic shapes to a low poly-count (approximately 10,000 verts) then applied three levels of subdivision to everything in the scene. The material setup was the main challenge of this work, with over 30 materials – almost all with multiple layers and all the textures and colours converted to greyscales. I let fryrender do its thing for over a day, before I composed the Diffuse, AO, Volume and matID channels with a separate render of the candle glare, creating a total of 16 layers in Photoshop.

Tristan Dyczkowski, by email

As a study in texture and lighting, you have done a good job. The lighting feels very natural and there is a good mix of texture (such as the bowl, the cloth and the cut apple). It would be interesting to see you try it with the fruit in focus, and maybe throwing all of the background into soft focus.

Still Life
A traditional subject handled in a contemporary digital art medium by Tristan Dyczkowski

Heavy weather

With a system comprised of 2.8GHz Quad-Core Intel Xeon, 6GB RAM and OSX 10.5.8, I still have problems importing Poser 7 figures (70MB in size) to Vue 8 XStream. The Vue environment becomes so slow that it takes a minimum of ten seconds to process the movement of my cursor. I would like to know if this is a recurring problem or is there something running amok in my computer?

Agbota Okojie, by email

In all probability it's the graphics card. As you're running a Mac, you need to check what kind of spec it has and look to upgrade it for something that's both fast and has plenty of onboard RAM. Try people like Workstation Specialists for expert advice.

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Not just for dummies

Mac for Beginners
Android for Beginners
All you need to get started with your Android device
All the essential apps
Setting up your device
Learn about Gmail & Maps
Full guide to Android Market
iPad for Beginners

for Beginners™

A clear, comprehensive series for people who want to start learning about iPhone, iPad, Mac, Android and Photoshop

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www.3dartistonline.com
to view the art and chat to the artists

A

C

Want to know what your fellow 3D artists have been creating this month? Check out the best of the online gallery

B

A Deep Space Doris
» **Paul Woodward**
Paul says: "An updated image of *Deep Space Doris*"
We say: "Great character and nicely executed"

B PamLitoral
» **Otavio Lanner**
Otavio says: "An architectural experiment situated in the jungle which is known as Mata Atlântica in Brazil"
We say: "Interesting concept and plenty of detail"

C Old Woodland Canal
» **Dominic Davison**
Dom says: "Adapted from *Woodland Waterway*. Rendered and composed in Vue, with minor post-work done on the levels. Thanks for viewing"
We say: "Fantastic composition and so much detail to interest the eye from the foreground to the far distance. Excellent work"

D Gold Mining
» **John Moonan**
John says: "I have been playing *Red Dead Redemption* and was inspired to do a cowgirl image. I modelled the TNT and cigarette in Silo and rendered this scene in Poser 8. The cowgirl outfit is from DAZ 3D (Cowboy Sweetheart)"
We say: "Nice, fun image, with effective lighting and natural pose"

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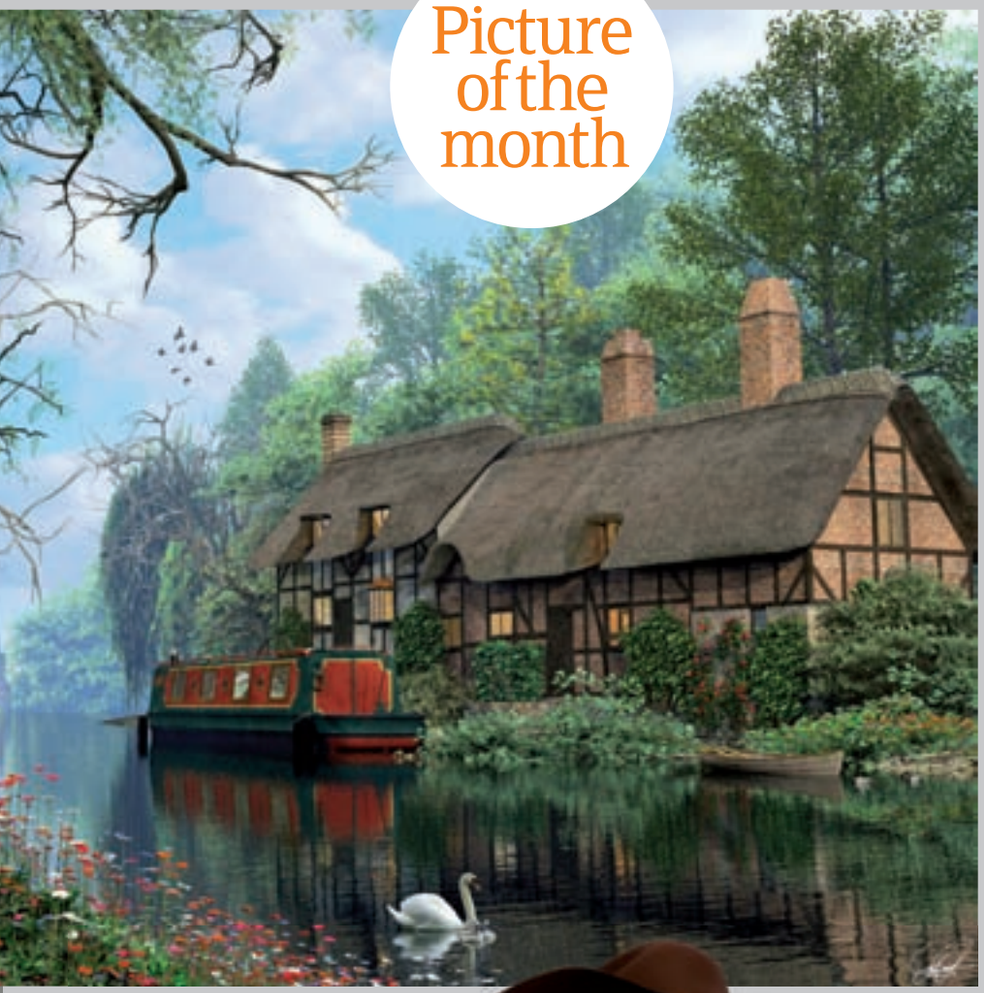
Picture of the month



Pictures of the week

THESE ARE THE IMAGES THAT WERE AWARDED PICTURE OF THE WEEK IN THE LAST MONTH

The Secret Passage

» **Angel Trudeau**

Angel says: "One day, eight-year-old Adam was in the library, as he sometimes was, and he saw a book up on a high shelf that looked intriguing..."

We say: "There's quite a story to this image which we don't have space for here, so check it out on the website to find out more"

Lady with Candle

» **Zoltan Miklosi**

Zoltan says: "Made with Blender 2.49b and Photoshop CS2"

We say: "Nice use of fabrics and colour as well as dynamic posing"

Tangent (above)

» **Ross William Orille**

Ross says: "This is a scene using low-poly models in an interior setup. The pilot is my latest character model and I'm working on improving my character modelling as well as low-poly environment modelling. Models were done with 3ds Max 8 and rendering in V-Ray."

We say: "Good work – there's a nice combination of modelling and atmosphere in this image"

Cruising the City (below)

» **Scott Gibson**

Scott says: "Created originally as a test for my own skill, it soon became favoured among designers winning a Daily Deviation on deviantART and being featured in a tutorial in **3D Artist** (issue 8) and Digital Art Secrets"

We say: "Great lighting and point-of-view for this suburban racer"

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A The Hydra allowed Digital Domain to showcase its creature animation skills

Percy Jackson & The Olympians: The Lightning Thief
© 2010 20th Century Fox. All rights reserved

Name Cliff Plumer
Job title CEO, Digital Domain
Company website www.digitaldomain.com
Country USA
Software used Maya, Houdini, Nuke and proprietary tools
Expertise Digital production, animation and visual effects for feature films and commercials
Client list Columbia Pictures, DreamWorks SKG, Marvel Studios, Paramount Pictures, 20th Century Fox, Universal Pictures, Walt Disney Pictures, Warner Bros. Pictures

> “...audiences have become increasingly sophisticated and our expertise is crucial to bringing incredible new stories to the screen”

Cliff Plumer is the CEO of Academy Award-winning digital production studio Digital Domain

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Duncan Evans talks to Cliff Plumer, CEO of Digital Domain, about blowing up geometry for big budget movies

Explosive effects

Founded in 1993 in Venice, California to serve the visual effects market, Digital Domain today employs between 400 and 500 people, depending on the workload, and has recently opened an office in Vancouver, Canada. Starting with work on *Apollo 13* in 1995, Digital Domain made a name for itself with sterling work on *The Fifth Element*, winning Oscars for *Titanic* and *What Dreams May Come* before hitting a home run with *The Day After Tomorrow*. Remember the tidal wave that swamps New York? That was Digital Domain's fluid simulation work that put a marker down for visual effects. DD has worked on increasingly more extravagant and difficult effects in *I, Robot*, *Pirates of the Caribbean: At World's End*, *Benjamin Button*, *Transformers: Revenge of the Fallen* and most recently, the CGI apocalypse that was *2012*. We caught up with Cliff Plumer, CEO of Digital Domain who took time out from the current production of *TRON: Legacy* to talk movie effects with 3D Artist.

3D Artist: *Despite the global recession, the appetite for VFX appears unabated. Have you found the demand showing any sign of slowing down or is it increasing because relative costs are falling?*

Cliff Plumer: Visual effects used to be just one part of the production process, but now the lines are blurred: we're in an age of

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'digital production'. When you consider the proliferation of digital characters, digital environments and movies that are shot in stereoscopic 3D, we have to be involved at every stage of production – sometimes before a script even exists. It's not that there's a strong appetite for visual effects; rather, audiences have become increasingly sophisticated and our expertise is crucial to the process of bringing incredible new stories to the screen.

3DA: *Did you find the writers' strike had an impact on projects getting off the ground?*
CP: Development budgets have always been tight, so the writers' strike was a catalyst that forced studios to reassess how they develop projects. It gave us an opportunity to work on proof-of-concept pieces that demonstrate how a project will look and feel – giving studios more than just words on a page. *TRON* serves as the perfect example of this – in 2008 we worked on a visual effects concept test for Walt Disney Pictures that visualised how the world would come alive on screen and that piece helped move the project from development into production. Fast-forward two years and *TRON: Legacy* is currently in production and will be released in 3D later this year.

B Simon Pegg's teleport scene from *Star Trek* involved blue screen footage merged with CG effects

Star Trek
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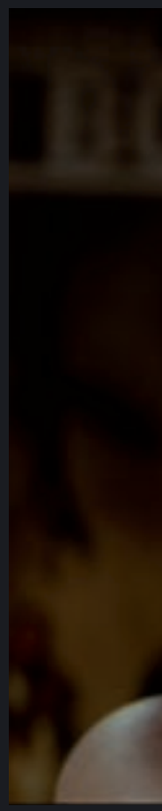

3DA: *What kind of hardware and software setup do you have at your main office? By this we're talking about numbers of computers and your main software apps.*
CP: We have strong relationships with hardware providers such as HP and NetApp, and, on the software side, Maya is our primary animation package, Houdini is our primary fx package, NUKE is used for compositing and we have many proprietary tools used in conjunction with these and other software packages.

3DA: *How much previsualisation work do you get involved in before shooting starts on a project? Do you have a lot of location-based work prior to shooting?*
CP: Our work on a film is a continuous process – we're often involved at the earliest stages, through principal photography all the way to final delivery. The digital assets we create also evolve throughout the course of production, so there's no longer a clear delineation between previs, postvis and visual effects – it's all part of the digital production process.

3DA: *Let's talk about some of the big movie projects that Digital Domain has worked on, starting with* Percy Jackson. *You came up with the fire-breathing Hydra with ten heads.*
CP: The Hydra was a great opportunity for Digital Domain to showcase its creature animation skills. Visual effects supervisor Kelly Port and animation director Dan Taylor oversaw a great team that made this one of the film's most memorable scenes.

3DA: *The Hydra set piece was particularly complex because there's both the physical set, interaction with Percy, flames and water. Run through how you went about creating this scene, the problems involved and how they were solved.*
CP: We couldn't have asked for a better platform to showcase such a wide range of capabilities than our work on the Hydra sequence. Creating photorealistic digital water is always a difficult task, but we have a proprietary fluid simulation system that was recently bestowed a Scientific & Technical Achievement Award by the Academy, so our crew is very adept at meeting that challenge. Led by Phillip Prahl and Thomas Reppen, the fx team created a fire pipeline in Houdini that gave the Hydra an added level of menace. And of course Dan Taylor's animation team really made the Hydra come alive, with its 'junkyard dog' personality and serpentine necks – not to mention the fact that it evolves from a five-headed to

C *Sonny* from *I, Robot*
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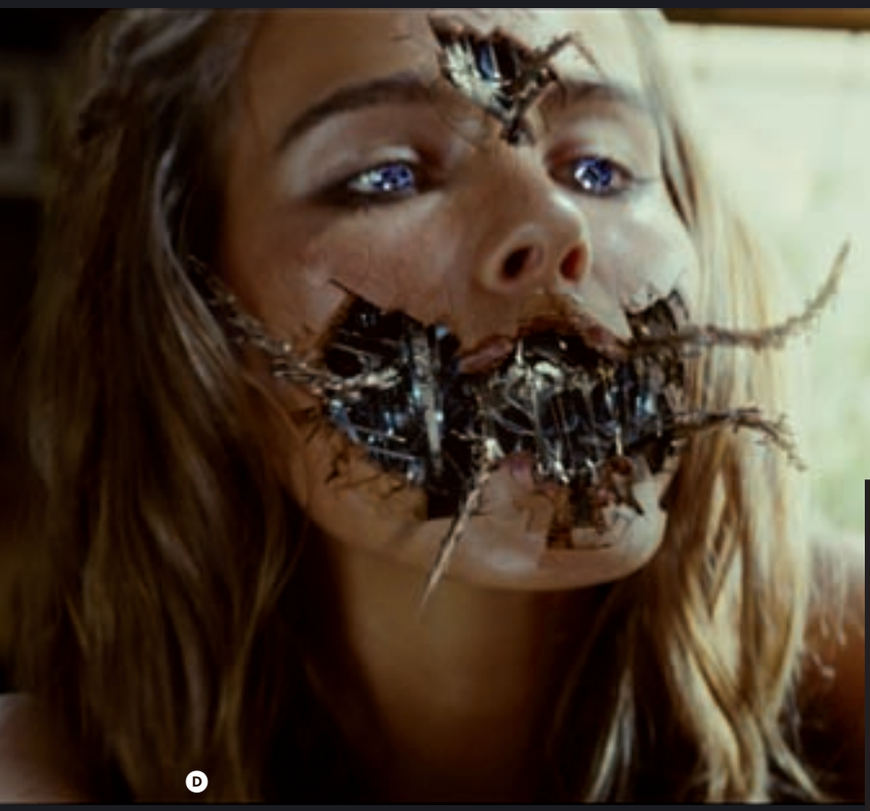
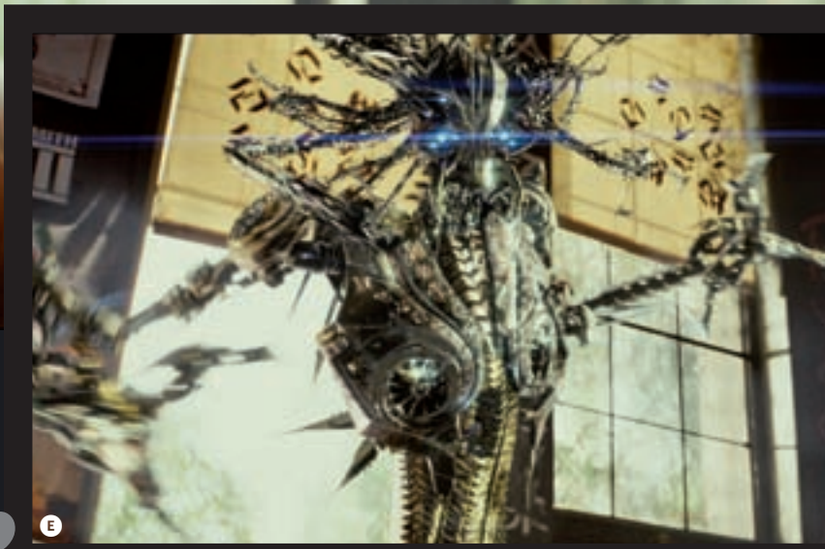


D A proceduralised deconstruction pattern allowed Digital Domain to create a robot emerging from a girl in the last *Transformers* film

Transformers: Revenge of the Fallen © 2009 Paramount Pictures. All rights reserved

E *Transformers: Revenge of the Fallen* © 2009 Paramount Pictures. All rights reserved



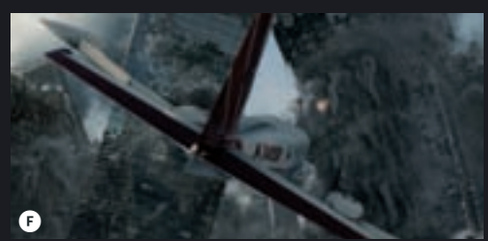
> "The challenge here was that the water had to behave in a physically accurate way but also exhibit supernatural properties"

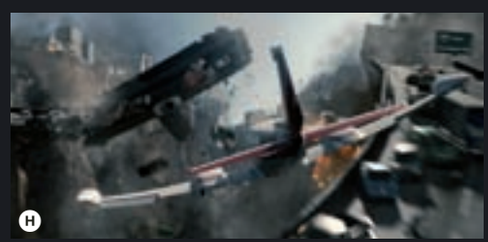
a ten-headed monster in seconds. All of these elements came together in grand fashion to make this a very exciting battle.

3DA: *Digital Domain also created a six-winged Fury that drags Percy through the air. How did this work out in practice, matching the animation of the Fury to the actor?*
CP: It can be a difficult task to match live action plates with digitally animated characters, but Chris Columbus has experience with such films – he directed the first two *Harry Potter* movies – and Dan Taylor's animation team is the best in the business, so we were able to combine the physical and digital in a completely believable way. Also, it's interesting to note that Chris Columbus initially conceived the Fury creature design, and then Nick Lloyd here at Digital Domain worked closely with Chris and his production team to develop the Fury as she appears in the finished film.

3DA: *Finally on this film, there's a magical flood of water in the last battle. Water fluid mechanics seems to be something of a speciality of Digital Domain – how did you go about creating this effect?*
CP: Digital Domain's fluid simulation system was first used on screen in *The Lord of the Rings: The Fellowship of the Ring*, so we have over ten years' experience creating photorealistic digital water. The challenge here was that the water had to behave in a physically accurate way but also exhibit supernatural properties, since Percy commands water in ways that real people cannot. It was a delicate balance between real-world physics blended with magic, trying to make it seem natural and believable at the same time.

3DA: *As mentioned, you've got a bit of a track record on the old water front as DD created the major set piece tidal wave in* The Day After Tomorrow. *How much more realistic do you feel fluid animation is now and has it got easier thanks to new tools, or harder because of higher expectations?*
CP: The industry has made significant strides in this arena and we are always improving our software tools, but audiences are also getting better, particularly at recognising something that doesn't look 'real'. Fluids are a unique challenge because people are very familiar with the physical nature of water, so we must constantly innovate to make sure that our fluid simulations keep pace with ever-growing audience sophistication.





F G H *2012* saw Digital Domain surpass its destruction sequences in *The Day After Tomorrow*, with rigid body dynamics simulations on a scale never seen before

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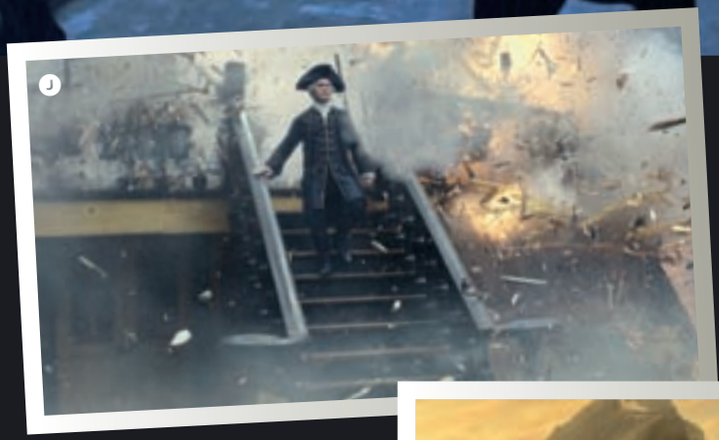
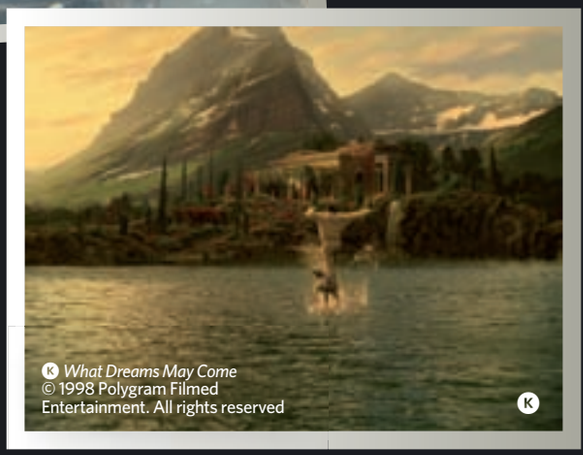


J

I Digital Domain's tidal scene in TDAT set the standard for fluid animation

The Day After Tomorrow
© 2004 20th Century Fox. All rights reserved

J *Pirates of the Caribbean: At World's End*
© 2007 Walt Disney Pictures. All rights reserved



K *What Dreams May Come*
© 1998 Polygram Filmed Entertainment. All rights reserved

K

3DA: *There was more water work for DD on JJ Abrams' 2009* Star Trek*, specifically where Simon Pegg gets teleported inside a tube full of water. How did you go about creating this?*
CP: Actually, Simon Pegg was shot underwater against a blue screen, so visual effects supervisor Kelly Port and his team used those plates as one of several elements in the sequence. They created CG pipes and integrated them with footage shot on set, which was particularly challenging because a number of pipes extended across the whole frame. Kelly's team also had to account for lens distortion and perspective, adding full 3D reflection and refraction on the pipes.

3DA*: What else did you do on this movie?*
CP: In addition to the engineering bay scene, we also worked on the cornfield sequence where James Kirk tries to outrun a robotic police officer, and we created the eyes for Keenser, Scotty's alien apprentice.

3DA: *On* Transformers: Revenge of the Fallen *there's a really interesting sequence where Shia LaBeouf is attacked in his college room by a robot masquerading as a girl. Can you take us through some of the techniques used here, starting with projecting textures as the girl transforms?*
CP: Visual effects supervisor Matthew Butler and computer graphics supervisor Paul George Palop had to combine the inherent movement of the actress with the improvised animation of the robot, then sew it all together using a proceduralised deconstruction pattern. They approached this transformation by creating algorithms that could mechanically erode her outer surface with a clear source and target destination between disparate animations. We started off tracking a piece of her dress, which had to end on a mechanical piece that moves at a very different rate, with different lighting. We created different lighting because the plate lighting, which worked for the live actress, didn't have enough pizzazz for the robot. If we matched it exactly the robot looked dull, and the director Michael Bay likes the robots to pop off the screen.

The complexity of the shot was compounded because it involves many different people and software packages. It took an incredible amount of modelling, fx animation and rendering from multiple faculties, and that created a complex lighting/compositing integration need. The 'petalling' of her flesh used one package, hair used another and so on – it's not all the same pipeline. We had to put on our rendering brains. If you have to break a composite up into many individual renders from different disciplines, you're faced with how it should all come together. You have endless freedom and the ability to tinker quite a bit, but that can be a disaster. If you get one thing wrong, it ruins the whole shot and you have to figure out what broke down. We didn't have the luxury of leaning on a single rendering toolset to create photoreal lighting environments. To steer this beast we had to think like a photon, 'Light should be going from here to here… It would be

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The Curious Case of Benjamin Button © 2008 Paramount Pictures and Warner Bros. All rights reserved

Key Project

The Curious Case of Benjamin Button

The Brad Pitt/Cate Blanchett epic was, in one sense, 2008's *Avatar*. Not that it starred blue aliens, but something even tougher – it featured a fully CGI head that was placed onto a human actor. Not only that, it aged backwards until it seamlessly merged with Brad Pitt. Digital Domain's 100 per cent 3D CG version of Brad Pitt's head carried the lead character's performance for 52 minutes of the movie – over 325 shots – eventually earning four VES awards, a BAFTA and an Academy Award for achievement in visual effects. Visual effects supervisor Eric Barba and character supervisor Steve Preeg developed a new process of 'e-motion capture' for transferring a live actor's likeness and performance to a CG model, along with innovations in on-set data capture, facial expression and performance capture, skin simulations and the creation of a custom rig.

occluding the reflection of that…', and so on. Matthew's team worked on that transformation for a solid six months.

3DA: *Have you signed up for next year's* Transformers *3?*
CP: Yes, we are working on *Transformers 3*.

3DA: *Last year's disaster epic* 2012 *was known for the scale of the sequences of destruction, which even outdid those of* The Day After Tomorrow. *The most complex and jaw-dropping of these was when Los Angeles falls apart as the protagonists escape by plane. The detail level is extraordinary.*
CP: When we first took on this project, we knew that we had to do rigid body dynamics simulations on a scale that had never been done before. There was no off-the-shelf rigid body solver in any software package that could do what we needed, so we knew that we had to build our own system.

Visual effects supervisor Mohen Leo and computer graphics supervisor David Stephens decided to build our rigid body dynamics tools around a core engine called Bullet, which is an open source project and a very simple but fast and stable engine. Our software team then built a new rigid body simulation system around Bullet, adding our own techniques for shattering objects, creating constraints between the pieces, adding material properties (so some parts could behave like wood, some like glass, others like concrete, and so on), and then running the simulations. We called this new rigid dynamics tool 'Drop'.

> "There was no off-the-shelf rigid body solver that could do what we needed, so we knew that we had to build our own system"

Drop also gave the artists intuitive controls to weaken constraints in areas where they wanted major breaks to occur. This allowed them to choreograph simulations, so they could determine where a building should break, how large or small the sections would be, in which direction it should fall, etc. Finally, another huge advantage of Drop was that it was extremely fast and stable. It allowed us to run simulations with thousands – sometimes tens of thousands – of colliding pieces of geometry in an hour or two, so artists could get several takes in one day and try variations until they found the best setup.

Another visual element that was really important to director Roland Emmerich was the look and feel of the walls of the giant crack that opens up in the sequence. He really wanted the material and the way it breaks to feel organic and real. We went through a lot of iterations to find the exact mix of huge breaking and crumbling sections, loose earth and billowing dust the director had envisioned. Digital Domain's proprietary volume renderer Storm was used for dust and smoke elements.

The biggest challenge of these huge all-CG environment shots was the amount of detail that each required. Our modelling department built dozens of office buildings, apartment buildings, bungalows, cars, trees, roads, chairs, desks and so on. Over 350 different objects were created. For one shot showing a close-up of a downtown office collapsing, we even modelled and simulated pencils, staplers and post-it notes. Modellers built interior structure into the buildings – eg inner walls, beams and floors – so that they would not only look real but behave like a real collapsing building in the simulations, too.

Of course, all of these models had to be textured as well, and then go through look and shader development. The most challenging model in that respect was the Cessna aeroplane, which is in almost every shot, often close up, and had to be matched with a real aeroplane.

Star Trek © 2009 Paramount Pictures. All rights reserved

3DA: *Now, you're working on* TRON: Legacy, *due for release at the end of the year. The original film pushed a lot of boundaries at the time, what can you tell us about your involvement with the new film?*
CP: Unfortunately we cannot discuss this project other than to say we are excited to be involved.

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Teach yourself 3D

Unable to go on a course to learn 3D? Don't worry. **David Crookes** looks at how you can teach yourself from home

If you didn't go to university or a training studio to study 3D or CGI, you may feel you're at a disadvantage. After all, how can you possibly compete against people who have been given expert advice and tuition and have had lots of time to hone their skills?

Such courses are not strictly necessary, though, since a flair for art and canny use of the many courses and tutorials on offer online can help you get better at your hobby or push you to the point where you can produce an impressive showreel to help secure a job.

Most software developers offer their own help in the form of online videos, DVDs and books and there are many independent sites, forums and publishers offering tips and tricks. Whether you're a beginner or a professional, there is something out there to take your art to the next level.

Some of the courses require you to invest a set amount of time each week while some are more fluid, allowing you to work around the many other responsibilities in your life. The aim is the same, however, and we aim to save you time by pointing you towards the very best resources available for the most common packages.

» Hester
Eerie character created by LightWave expert William Vaughan

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» *Maya creation*
Scene created by MPC for Wrigley's Fruit

Maya

Supplier Autodesk **Price** £3,050 **Website** http://usa.autodesk.com

You will not find a shortage of help when it comes to Maya. There are dozens of websites out there to offer assistance and there are more books and DVDs than it's feasible to cope with. You can enrol on great online courses and engage in many forums. In fact, the main problem you'll encounter is sifting through the rubbish.

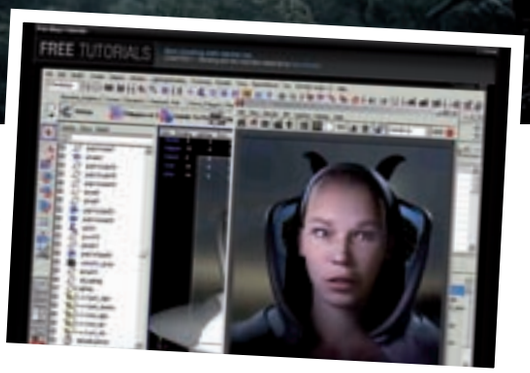
A good place to start is The Area – Autodesk's own resource website. There are close to a dozen pages packed with video tutorials (http://area.autodesk.com/tutorials). They look at how to build particular models and discuss memory-saving tricks. There's a study of how to make terrain textures and a spotlight on indoor lighting, as well as more general tips. You have to sign in to access the website's content but given the quality of the items on offer, it's a no-brainer.

More free tutorials are available at SimplyMaya.com (www.simplymaya.com). They nestle alongside paid-for content, but there's a good introduction to game texturing and a look at interior and character design. A similar site is 3D-Palace (www.3d-palace.com/maya-training). Beginners may well want to look at *The Basics of Modelling in Maya: The Dreadnought*, a free tutorial which goes through the modelling process step by step. It will quickly enable you to familiarise yourself with the Maya interface.

There are more free Maya tutorials at The Gnomon Workshop (www.thegnomonworkshop.com/store/category/167/Free-Maya-Tutorials). You can use them to better understand skin shading or creating believable eyes, plus a whole lot more. Conveniently, all the tutorials are placed under categories to make them easily identifiable. The site has many more paid-for tutorials too and there's a library of around 200 DVDs (not all directly related to Maya) catering for whichever path you wish to explore.

There are also some great print resources out there. One of the best publishers for Maya books is New Riders Press which has produced many tomes on a variety of subjects from scripting a character rig (Chris Maraffi's *MEL Scripting a Character Rig in Maya*) to full guides (*Maya 8 for Windows and Macintosh: Visual QuickStart Guide*). Maraffi's *Maya Character Creation* is also highly recommended as is Antony Ward's *Game Character Development with Maya*.

If you're willing to pay for tutorials, head straight to Digital-Tutors (www.digitaltutors.com). It specialises in solid online video courses, broken down into lessons. The standard is incredibly high and the company (started in 2001) is partnered with many software developers including Autodesk.



» *Gnomon workshop*
Gnomon Workshop is a great provider of 3D tutorials for home scholars

Finally, you may want to think about enrolling on an online course. Escape Studios (www.escapestudios.com) is renowned for its top-quality level of tutoring. When a student buys an online course from Escape Studios, they buy access to course materials for 12 months. The courses are designed and built by the same tutors from the corresponding classroom courses. The only difference to being in a physical class is the flexibility of being able to log on whenever you want and completing a course at your own pace.

The courses are a series of easy-to-understand video tutorials, following the same pipelines used in commercial CG studios. Students begin at the concept level and build feature-by-feature to the finished shot using what they've produced at the previous stage as the basis for the next.

At the end of the course, you have a finished shot or animation that can be inserted into a showreel. Single courses start from £86 for Introduction to Maya (with up to 50 per cent off for full-time students). The Maya Essentials bundle costs £600 but bursaries are available.

> “Whether you're a beginner or a professional, there is something out there”

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3ds Max

Supplier Autodesk **Price** £3,050
Website http://usa.autodesk.com

Working at home allows people to learn differently to people studying at university or somewhere like Escape Studios. Classroom courses can be 12 weeks of full days, and many people aren't able to sign up to such a gruelling schedule, due to other commitments.

Online courses allow people to benefit from the same expertise as their peers in the classroom, but in a way which fits around their busy lives and at their own pace.

Maya is not the only Autodesk product to benefit from this sort of help. The ever-popular 3ds Max is also well-catered for with Autodesk offering a range of Essential Skills Movies that show you the interface, how to create and edit objects, assign materials, set up lights and cameras, and animation. There's also a range of How-To Movies (http://download.autodesk.com/us/3dsmaxproducts), again aimed at helping you become au fait with the interface.

Autodesk offers a crash course on its website too, taking you through the basic concepts, modelling, animation and rendering. And there is a massive tutorial area on the Autodesk site (http://docs.autodesk.com/3DSMAX/13/ENU/Autodesk%203ds%20Max%202011%20Tutorials/index.html) which comes in very handy.

A host of training DVDs are available to get you up to speed with 3ds Max, each costing $29.99. You can find DVDs which teach you film visual effects, design visualisation, character rigging, animation effects and graphics for use in games, among many others.

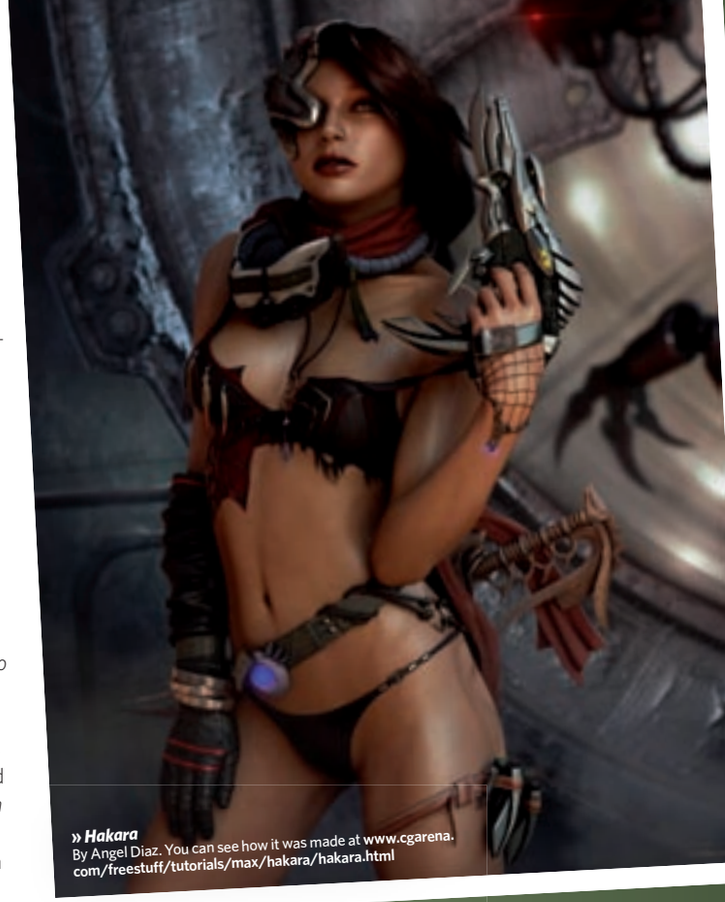
As you would expect, there are books too. The two ebooks *Learning Autodesk 3ds Max 2010 Foundation for Games* and *Learning Autodesk 3ds Max Design 2010* are both comprehensive, each around 600 pages and coming in at $24.99. In addition there are 'getting started' videos available.

3ds Max Modeling for Games: Insider's Guide to Game Character, Vehicle and Environment Modeling by Andrew Gahan is another awesome book worth getting hold of. So too is the *3ds Max 2010 Bible* by Kelly L. Murdock and the mouthful, *Realistic Architectural Visualization with 3ds Max and Mental Ray (Autodesk Media and Entertainment Techniques)* by Roger Cusson and Jamie Cardoso.

Aside from Autodesk's own online support, independent websites abound. Try 3ds Studio Max Tutorials (www.3dstudiomaxtutorials.com) for links to various resources across the web. Digital-Tutors (www.digitaltutors.com/09/training.php?cid=106) offers fantastic 3ds Max guides and courses, while online communities such as CGSociety (www.cgsociety.org), Twitter and Facebook provide opportunities for people to share work and get feedback, as well as take inspiration from others' work.

» *Still life*
Learn to create your own images in 3ds Max

> "Online courses allow people to benefit from the same expertise as in the classroom"



» *Hakara*
By Angel Diaz. You can see how it was made at www.cgarena.com/freestuff/tutorials/max/hakara/hakara.html

ZBrush

Supplier Pixologic **Price** $595
Website www.pixologic.com

Pixologic has its own ZClassroom (www.pixologic.com/zclassroom) and it's our favourite place to learn, with a heap of fun stuff to try out.

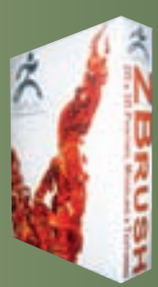
There are hundreds of tutorials produced by ZBrush users. One problem is that it's not a neat area to browse so it's a case of scrolling through the forums to find what you want. Yet there are many gems and chances to learn fresh techniques.

Pixologic has made professional videos available on its site too. It has a page with tabs that lead to various tutorial providers including Gnomon, BLESTAR, FormaCD and TVGrafica. It's a brilliant idea, ensuring you don't have to go traipsing around the internet on the hunt for advice.

On top of all this, there are ZBrush tips and tricks and a spotlight on a particular artist, complete with tutorial. A ZBrush wiki provides supporting documentation and will prove useful in navigating through a particular problem.

In terms of third-party companies, Escape Studios, for example, aims its courses at everyone, from people who have never used the package, right through to seasoned professionals. The flexible nature of the courses means they're often used by university students in conjunction with their courses to enhance their learning.

Scott Spencer is one of the best print-book authors. He has produced the brilliant *ZBrush Digital Sculpting Human Anatomy* and *ZBrush Character Creation: Advanced Digital Sculpting*.



There's an official YouTube channel with 132 uploads and ZBrushCentral is a bustling forum (www.zbrushcentral.com) on which you can request help and find solutions.

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modo 401

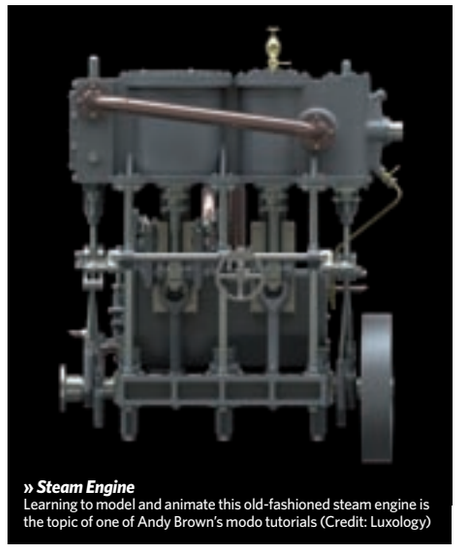
Supplier Luxology LLC **Price** $995 **Website** www.luxology.com

"Training is an incredibly important part of what we deliver," says Brad Peebler, the president of Luxology. The company produces its own modo tutorials and it says more than half of all users have directly bought at least one of its training products.

The modo software includes tutorial videos in its built-in documentation. One of the most prominent instructors is UK-based Andy Brown, a freelance 3D artist and part-time graphic design lecturer at TyneMet College. He is part of the in-house Luxology tutorial team and also has a selection of workshops on his website, www.cgbeard.com.

The quality of Luxology's tutorials is high. There are currently 17 video-based tutorials available to buy on its website (www.luxology.com/store/training_videos) and they are certainly varied, looking at anything from cartoon character modelling to furniture, architecture and industrial design topics. You can learn how to model the human eye, understand lighting and rendering, model a backpack or create a car. The backpack modelling tutorial was completed by Adam O'Hern, a California-based industrial designer, showing that Luxology isn't afraid to scout around for the best teaching material.

For those with a bit of cash to spare and dedication, a DVD-ROM by author Dan Ablan is available for $179. It lasts for 12 hours and introduces artists to modo. Aimed at beginners, it is broken up into sections and aims to take a student to the intermediate level. The focus is on learning new aspects of the program, looking at animation, modelling and texturing.



» Steam Engine
Learning to model and animate this old-fashioned steam engine is the topic of one of Andy Brown's modo tutorials (Credit: Luxology)

Luxology's offerings are not purely confined to video. A hard copy book is available for modo called *Real World modo* by Wes McDermott. It gives readers tips and is geared towards beginners and those who want to learn fresh tricks.

But you don't have to splash the cash. A variety of free modo tutorials are found at www.luxology.tv. These shorter videos are quick introductions to particular features. And, while not strictly training materials, Luxology also offers a series of 'kits' that the company has designed to accelerate production and reveal new ways to create re-usable content. The Splash Kit, for example, reveals water techniques in modo while the Studio Lighting and Illumination Kit provides a complete photographic studio of lights, tripods and reflectors.

» modo headphones
These headphones were modelled in modo by Yazan Malkosh, a frequent contributor to modo's educational offerings

CINEMA 4D

Supplier MAXON Computer
Price £619 **Website** www.maxon.net

» Suite
A CINEMA 4D interior scene by Enrique Rueda

It may not be the prettiest site in the world, but MAXON's Cineversity – an online, on-demand video training website – is nothing short of brilliant. By working your way through the 1,500 videos on offer (something that will take a huge chunk out of your life), you'll easily get yourself up to speed with CINEMA 4D. Beginners and pros alike will find something at **www.cineversity.com** to help take your art to another level.

Not all of the tutorials are free. To view the free ones, you can register as a forum member but the members-only tutorials are only available to view if you sign up to the Cineversity at a cost of $295 for the first year and $95 for each year thereafter. It's a small price to pay if you're keen to learn, however, and the material is of such a good standard that students on college courses are usually asked to make use of it.

Among the goodies are feature instructions, installation guides, project-based tutorials, integration tutorials (those which show you how CINEMA 4D works with other packages) and scripting resources. There are also live, bi-weekly question-and-answer sessions that allow you to pitch in with the issues that concern you.

If you want a more personal service, MAXON also offers live one-on-one online training. Register your interest at **info_us@maxon.net**.

As you would expect of a package like CINEMA 4D, there are also many books. Arndt von Koenigsmarck's *CINEMA 4D 11 Workshop* is well written although rather complex and Horst Sondermann's *Light Shadow Space: Visualizing in Architecture and CINEMA 4D* is also worth a look.

MAXON has its own YouTube channel (**www.youtube.com/user/MaxonC4D**), offering a smattering of basic tutorials, tips and short movies that are great for inspiration and for helping you to visualise just what is possible with the program. Also keep ahead of the game by signing up to MAXON's Facebook and Twitter accounts.

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+ Vue

Supplier e-on Software
Price From £59
Website www.e-onsoftware.com

» Along the Towpath
Tranquil environment by Vue artist Gill Brooks

Unlike some companies, e-on Software does not produce advanced training materials for Vue although it has created some basic tutorials. One of these is the Start Tutorial, which you see when you open Vue for the very first time and offers a gentle introduction to the package. Other beginner guides are included within the Reference Manual and on the developer's website (**www.e-onsoftware.com/support/tutorials**).

The best place to go for support, then, is the Vue online community, Cornucopia3D (**www.cornucopia3D.com**). The site has a plethora of free tutorials with the site users contributing many themselves. They are listed in a section called the Classroom (the producers of the best videos win a $50 voucher which helps to keep standards high) and they are placed under set categories from demos to basic overviews. The website also has forums and links to other free resources, among them **www.3dvalley.com**, **www.silverblades-suitcase.com** and **www.incrediblylush.com**.

There is also a place to watch streaming training lessons at **www.geekatplay.com** produced by Vue artist Vladimir Chopine, and also some certified training resources available on e-on's website. A range of books and DVDs can be found at **www.e-onsoftware.com/training** and they are produced by independent trainers of some pedigree. Vue artist Nicholas 'AsileFX' Pellegrino and Dax 'QuadSpinner' Pandhi being two.

Several books are still available for previous versions of Vue. *Vue 6 Revealed* and *Vue 7 Beyond the Basics* by Richard Schrand are worthwhile investments, as is *Vue 7 from the Ground Up* by Ami and Vladimir Chopine.

Even though such books are for previous versions of Vue, they do have lots of information which still applies to the newer versions.

Finally, there are some paid-for online Vue courses available that last for six weeks each (there is an introduction, intermediate and advanced course). Technical writer Peggy Walters is the instructor and each course allows for communication not only with the teacher but between classmates too for moral support. Progress is monitored throughout and students are encouraged every step of the way – some people need to be 'pushed' to keep their motivation high and so online courses are a great solution if you fall into this category. Another course is set to get underway at fxphd (**www.fxphd.com**) but it had not started at the time of writing. It's well worth keeping an eye out for it though.

LightWave

Supplier NewTek **Price** £599 **Website** www.newtek.com

» Tralfazz
Image produced by LightWave fanatic and artist William Vaughan who runs the excellent website **www.pushingpoints.com**

There are many instructional websites available for LightWave. The package is well regarded within the CGI industry and it's a complex beast, so making excellent use of the available resources will help put you on a par with people who have been more formally educated.

A good place to start is NewTek's website (**www.newtek.com**), which provides many links to various resources online. One of the best is Creative 3D (**www.creative-3d.net/3dlinks/3Dtutorials/LightWave**). It links to various other sites, all of a very high standard. Flay.Com (**www.flay.com**), while not the easiest site to get your head around, is packed with LightWave resources and news and will certainly help you get up to speed.

NewTek's YouTube channel (**www.youtube.com/user/NewTekInc**) has content which is added daily from the company's archives. There's also an unofficial page hosted by David Maldonado, NewTek's 3D marketing specialist, which is a compilation of tutorials by other LightWave users and can be found at **www.youtube.com/user/TheDMaldonado**.

Anyone interested in 3D with LightWave will also be able to make use of the NewTek forums (**www.newtek.com/forums**).

One book worth buying is *Creating a 3D Animated CGI Short* by Michael Scaramozzino (**http://dreamlight.com/studio/pr/PR-CGI-Short-Book.html**). It looks at the process of producing CGI short films, taking the reader from initial concept to the end-product and considers character design, texture, lip-syncing, postproduction and more. It doesn't just touch on LightWave, including modo, iMovie and a host of other off-the-shelf packages which makes it a good all-round buy. A more specific book is *Inside LightWave 9*. Written by trainer Dan Ablan, it offers many project tutorials and comes with a DVD.

For more unofficial web resources, try the International LightWave 3D User Group (**www.ilwug.com**), Liberty3D's training (**http://liberty3d.com/training/lightwave**) and William Vaughan's Pushing Points. Vaughan is NewTek's LightWave evangelist and helped write the manual; suffice it to say, he knows a thing or two. Check him out at **www.pushingpoints.com**.

> "[LightWave] is well regarded within the CGI industry and it's a complex beast"

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Poser

Supplier Smith Micro Software **Price** £175
Website http://poser.smithmicro.com

Although the human modelling program Poser is used by hundreds of thousands of people, finding help is not particularly straightforward. The major websites don't tend to touch on it in as great a depth as the likes of Maya but that's not to say there's nothing out there. You can, with some perseverance, build up a good stock of knowledge that will enable you to use Poser with confidence.

Maker Smith Micro has a list of tutorials on its website (http://my.smithmicro.com/tutorials) but they are written rather than video. They're perfect for having beside you as you work through a project but some would prefer more visual guides.

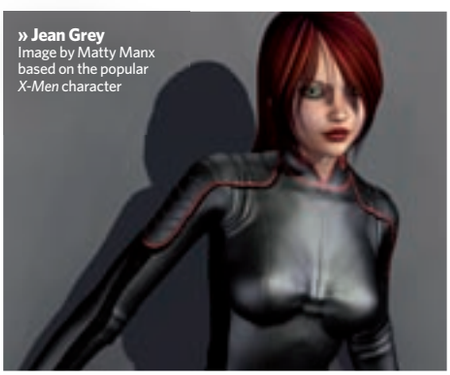
To that end, YouTube is a goldmine with many users having uploaded walkthroughs of all manner of techniques. There are also videos on Poser World (www.poserworld.com/Downloads/Subscriber.Tutorials.aspx) but these have not been updated all that regularly.

GeekAtPlay (www.geekatplay.com/posertutorials/index.php) is another stop on the learning bus. All of the tutorials are free to watch and cover most bases. You can get to know Poser, apply clothing or hair, customise poses, work on facial expressions and introduce props. If you're new to Poser, these will prove invaluable.

User Roy Riggs has set up his own website (www.royriggs.com/poser.html), specialising in using Poser with 3ds Max and one of his tutorials looks at making clothes using the latter package.

One big site is Renderosity (www.renderosity.com). It began life as a Poser forum and while it has diversified since, there's still a lot of Poser activity, including tutorials and discussions. Check out also Poserpedia (www.poserpedia.com) – an unofficial wiki that also caters for DAZ Studio The idea behind Poserpedia is to pull in as much content as possible to act as a central hub for the product.

Of course the fact that you're reading 3D Artist will ensure you'll be kept in the know with our Poser tutorials, hints and tips. Magazines such as ours are great for keeping up to date with the latest programs and techniques and for seeing what other people are doing with popular software.



» Jean Grey
Image by Matty Manx based on the popular *X-Men* character

Carrara & DAZ Studio

Supplier DAZ Productions, Inc **Price** DAZ Studio is a free download (also available is DAZ Studio Advanced – $149.95)
Carrara 7 – $249; Carrara 7 Pro – $549 **Website** www.daz3d.com

» *Queen of Ages*
Produced using DAZ Studio by Tony Bradt

» *Blood Bound Red*
Created in DAZ Studio by Tony Bradt

For users of Carrara and DAZ Studio, it's worth heading straight to the DAZ website for some great training materials. Newcomers will want to get hold of the *Carrara 7 Training DVD* (a download is also available) but there are other goodies too. The company's website also has some great DVDs for learning Bryce called *The Learn Bryce Series Volume 3* (two disc set).

It's also worth getting hold of a great book by veteran videogame animator Les Pardew called *Figures, Characters, and Avatars: The Official Guide to Using DAZ Studio to Create Beautiful Art*. It helps readers to learn DAZ Studio and it comes with a DVD full of applications to try out. The emphasis is on creative imagination and using what skills you have to create something beautiful, all the while pushing you along to better yourself.

One of the most intriguing offerings is a month's access to professional coaching via the Dreamlight Club. It offers a chance for artists using DAZ Studio and Carrara to improve their skills. The club is geared up for people who take their 3D art seriously and it claims it can help turn amateurs into professionals. For $29.99, it's a sound investment. If you stick at it, you will have to factor in that as a monthly cost, but it's still a relatively small sum.

You can also sign up for live training. You have to commit to four sessions each month at an hour a go. The sessions are recorded and you can view them for as long as your subscription is active. To find out more about this, head to **www.dream-lounge.com/dreamlight/dlc.htm**. If you sign up for a free newsletter, you'll receive a free ebook called *The Magic of Layers in 3D*.

DAZ also has a great selection of freebie videos on YouTube. Simply go to **www.youtube.com/user/WWWDAZ3DCOM** and you can view a host of tutorials and instructional videos that examine subjects ranging from body physics to a look at new options in the software and the improvements that have been made. Keeping yourself up to date with software changes is vital if you're going to make the most of your 3D art.

Finally, why not take a look at the tutorials and articles at the Wikiversity (**http://en.wikiversity.org/wiki/Animation_with_DAZ_Studio**). Just type the name 'DAZ Studio' into the search engine to discover all it has to offer.

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© Kerry Low Low.
Images courtesy of MPC

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Lynette Clee talks to The Foundry – Britain's latest VFX success story – as the firm continues to push technological boundaries

Hammering out success

> Just about everything you see that features VFX has been touched by our software. Commercials, television, games and feature films all make use of our technology
>
> **Lucy Cooper,** Head of marketing

Company The Foundry
Founded 1996
Company website www.thefoundry.co.uk
Location London
Expertise VFX software
Client list ILM, Weta Digital, Framestore, Cinesite, Prime Focus, Sony Pictures Imageworks, BSkyB, MPC, The Mill, Double Negative, Zoic Studios, Sony PlayStation, Blizzard Entertainment, Passion Pictures and more

The Foundry's Nuke has become the de facto standard in effects compositing. With the company now driving ever forwards into a world of emerging stereo 3D effects, The Foundry's reputation and its products have been universally established in the industry following a period of rapid growth. Now firmly in the minds of artists working in VFX, the company is growing in its success as Nuke is adopted into pipelines the world over. With impending product releases and a constant awareness of the need to take the company in new directions to keep up with industry demands, The Foundry has become a massive British success story.

3D Artist wanted to find out more about the Nuke 'buzz'. Visiting The Foundry's unassuming headquarters in Soho, London, we got to know more about the people behind the VFX industry's hottest products.

The Nuke buzz

Nuke is now the standard compositing system being used in facilities around the world. This, in tandem with the Ocula plug-in toolset for Nuke, is helping to solve the common problems with stereoscopic imagery to improve workflow and increase productivity in film productions of varying budgets. Apart from Ocula for Nuke and the award-winning Furnace toolset, The Foundry also develops other plug-in products, such as the Keylight blue/green screen keyer and a RollingShutter plug-in to remove distortions from CMOS camera footage. These are available on a variety of host systems from other vendors, such as Adobe's After Effects, Apple's Final Cut Pro and of course Autodesk's systems.

Clients hail from all corners of the globe. From one-man bands to large VFX houses and everything in between, customers are effectively using The Foundry's products as means to a host of different ends. "Just about everything you see that features VFX has been touched by our software at some stage," Lucy Cooper, head of marketing at The Foundry told 3D Artist. "Commercials, television, games and feature films are all markets that make effective use of our technology." The Foundry is currently working very closely with companies on some specific projects, but this is all very hush-hush until they're released. We'll have to wait in suspense on those.

Nuke has now taken over from Shake in the visual effects industry. And the reason the Foundry is continually leading the way? Because the team works not just at reaching the top but staying there. A passion about what they do is what makes the engineering and support teams second to none. Frequently on the road, always keen to get involved, to help avert problems as well as learn from them, they will regularly visit clients – and even those who aren't – to hear industry demands first-hand. "All of our

Name Simon Robinson
Job Title Chief scientist and co-founder

Name Lucy Cooper
Job Title Head of marketing

Name Bill Collis
Job Title CEO

Ⓐ This was MPC's first project done exclusively in Nuke. Nuke proved time-efficient when working with the 3D heavy shots and huge resolutions – some shots in this job are over 8K – and enabled the virtual 2D camera moves which zoom right in on the mouse

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products have come out of our relationships with our clients," Bill Collis, CEO at The Foundry commented. "We have a large research team that networks widely with academics to make the hard stuff possible. We know that modern production is an intricate and changing landscape and we have to endeavour to fit in and interact with all that complexity."

A leap of faith

In 2007, The Foundry took on the development and marketing of Digital Domain's internally developed Nuke compositing system, which is now leading the way in the field of visual effects. Originally founded in 1996 as a partnership between Bruno Nicoletti and Simon Robinson, The Foundry was established with a simple vision: to produce the Tinder image-processing plug-ins for use in systems doing image compositing for film and TV. This concept came about because Bruno and Simon noticed that there was a wider market for the kind of skills they had long been applying on a bespoke basis while working in production environments.

Taking a new direction in 2004, the company released Furnace, an ambitious new plug-in toolset using a mixture of motion-analysis techniques to solve common problems encountered in film postproduction. The commercial success of the product and the technology behind it won the team an AMPAS Sci-Tech Award in 2007, as well as a firm place in the minds of artists working on feature films across the planet. This set them up for even more success, as Bill explained: "A management buy-out of the company in 2009, supported by Advent Venture Partners, has been followed by a period of rapid growth and new strategic partnerships, notably with Weta Digital and Sony Pictures Imageworks, which have set the backdrop for entirely new product launches."

What's new?

The Foundry is currently close to a release of Mari, the texture painting application originally developed at Weta Digital. "The technology was driven by the texture department's need to handle complex, high-resolution textures on 3D models in *King Kong* and *Avatar*," Simon Robinson, chief scientist and co-founder of The Foundry explained. "Born out of genuine production experience, Mari was designed as a full 3D paint tool with a responsiveness and feature set that puts even the best dedicated 2D paint systems to shame."

Never one to sit still, The Foundry is also currently working to bring Sony Pictures Imageworks' Katana look development and lighting technology to market. With no announcement yet on the availability of this, the team is confident that customers will be seeing the results very soon. But even then, the technology doesn't stop there: new plug-ins for other hosts are also

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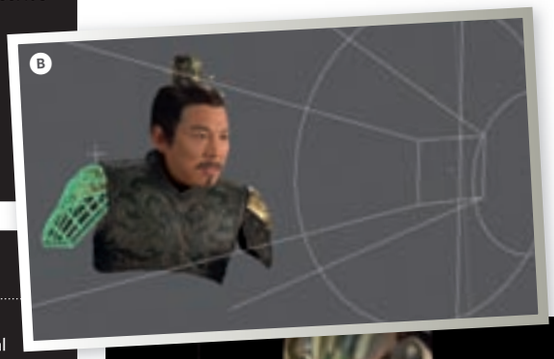
So what exactly is Nuke?

Nuke is a desktop compositing system, used in postproduction to bring together two-dimensional filmed material and three-dimensional CG elements into a complete visual effects sequence. It can be thought of as the assembly station for any shot, where all the component elements are painstakingly combined and made to look seamless. The system began as an in-house solution for effects facility Digital Domain in LA, and under The Foundry's development has stayed true to its beginnings as a tool designed by artists for artists. The system is used across television, commercials and feature-films, and has grown in popularity to the point that almost every major project today uses Nuke in postproduction to some degree. It's cross-platform and highly customisable, which has proved essential in an industry where no two customers approach a problem in the same way. It's efficient at handling the unavoidably massive, multi-channel, multi-view, high-resolution datasets used in film and is designed to cope with the mind-bogglingly intricate craft work that goes into visual effects today.

How does Ocula help?

Ocula is a toolset available as an optional plug-in extra for the Nuke system. Built by The Foundry's large research team, and originally conceived with input from Weta Digital in New Zealand during the *Avatar* project, the tools have been under continuous development ever since as the amount of postproduction work on stereo 3D effects has burgeoned. The tools in the package allow an artist to build a fundamental understanding of their paired image sequences, such as the alignment of the original cameras (or, quite often, their misalignment!) and also to determine which pixels in the left-eye sequence match which pixels in the right-eye sequence. This extracted data then allows the plug-in to assist with a number of important tasks, such as fixing problems with camera geometry, matching colour density differences between the left and right eyes and also helping to warp compositing work performed on one eye over to the other eye. The extracted data can additionally be used by a range of other nodes within Nuke to help them better perform tasks across multiple views.



The Mummy: Tomb of the Dragon Emperor © Universal. Images courtesy of Digital Domain

B Jet Li reprojected onto body geometry in Nuke

C The same projection procedure was applied to the mud

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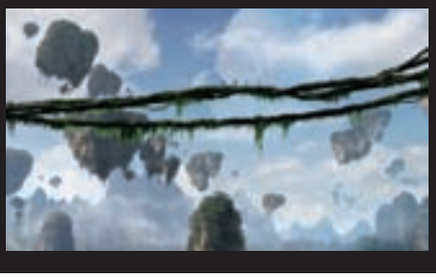
Image courtesy of Weta Digital

Key Project 1

Avatar

Avatar was a groundbreaking project for many vendors. In The Foundry's case it prompted the refinement of the stereoscopic workflow in Nuke and the conception of Ocula, the company's plug-in tools for tackling issues unique to stereo footage. *Avatar* was also the prime motivation behind Weta Digital's development of the Mari 3D texture painting application, and the close collaboration between The Foundry and Weta Digital then led to Mari becoming the most recent addition to the company's product portfolio.



on The Foundry's never-ending 'to do' list. When asked how they keep on top of it all and keep responding to artists' needs, Bill responded: "We keep on top of things by not getting to sit down much." How apt, then, that on 3D Artist's visit to The Foundry the team had not long arrived back from the NAB Show – this year held in Las Vegas – where they showcased a prototype of their 3D camera tracker working in After Effects, as well as a new alpha version of the Kronos retimer. "This Kronos is special," Simon told us. "It builds upon the work of The Foundry's High Performance Computing team's 'Blink' technology to push much of the computing complexity onto a GPU card, allowing us to do retiming at quite astonishing speeds."

Keeping up with the trends

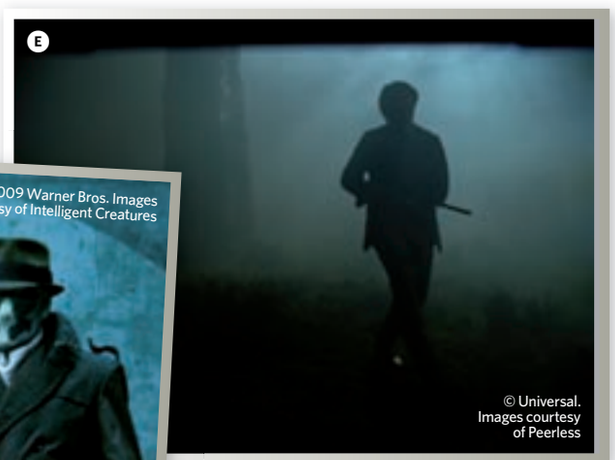
Technology today may be all about speed, but the industry changes at a different pace. "The industry changes slowly, but the trend over the company lifetime is significant," Bill explained. "The move to digital capture – now often in stereo, digital intermediate and delivery, lower margins and extraordinary changes in visual quality have defined the decade. These factors have pushed the requirements of vendors like us to deliver ever increasing complexity at ever lower prices."

And Bill's predictions for the industry over the next few years? "We can only predict the general continuation of the current trends. Visual quality will go up and margins will go down. Some smaller companies will be doing projects of a complexity that previously would have required a massive organisation. Yet at the same time, the larger facilities will keep breaking new ground on what is visually possible. There's room for us to support work at all of these scales."

Support is certainly the company's thing. Artists choose to work with The Foundry's products in part because of the way in which the team engages with the community. It's hard work, but the key plus

D Bruno Nicoletti started The Foundry with Simon Robinson and is now CTO. He *is* The Foundry

E Peerless had to work with some badly scratch-damaged shots on *The Wolfman*. A professional restoration facility failed to repair them, but a combination of WireRemoval and ScratchRepair from Furnace achieved great results, saving literally hours!



F Nuke was also used to perfect depth-of-field on Rorschach's mask, using the Focal Plane setup on the Z-Depth to create soft-edge mattes and apply defocus

> "Because we already had a good relationship with Weta's team, we were prompted by them in 2007 to look at the stereo 3D workflow..."
>
> **Simon Robinson,** Chief scientist and co-founder of The Foundry

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When Intelligent Creatures was given the responsibility of creating the dynamic and continuously changing inkblots on the mask that conceals the face of *Watchmen*'s sci-fi superhero, Rorschach, the company was well-tooled with Nuke

© 2009 Warner Bros. Images courtesy of Intelligent Creatures

Key Project 2

District 9

District 9 was largely shot on the RED camera and Image Engine in Canada was able to make good use of Nuke's newly implemented RED file workflow to complete its shots for the film. The creative team pushed Nuke in extraordinary ways to do extensive removal of stand-in actors throughout the movie. Image Engine also used its own ingenious, internally developed plug-ins for Nuke to allow tuning of 3D lighting in the context of the composite, saving significant re-rendering back in 3D. The postproduction company also collaborated with The Foundry to incorporate parts of these techniques inside the next commercial release of Nuke. In addition to all this innovative Nuke work, the Image Engine team also employed The Foundry's Sci-Tech Award-winning Furnace technology for retiming and grain management throughout the project.

© 2009 Columbia Tristar, Inc. All rights reserved. Images courtesy of Image Engine

point is that it keeps them hand-in-hand with the artists, which benefits everyone.

Nuke it!

Nuke is not a difficult tool for an artist to add to their belt. With a number of institutions around the world now offering lessons in Nuke, both online and in class, it's becoming even more accessible. "Being a good artist is hard, as is selling your skills, and we don't have a ready solution to that!" Lucy commented. You can find some Nuke tutorials on The Foundry's website, but they leave the training up to the established companies already offering online courses. fxphd is a good example for those looking for high-quality internet training. Artists already working in VFX who want to adopt Nuke into their workflow will find they'll most likely be able to pick Nuke up and run with it. And with a Private Learning Edition available, artists can get to grips with the basics of Nuke for no charge at all.

Bearing in mind the sheer magnitude of visual effects used today, Nuke is a wise move for those looking to break into the VFX field. "Every major feature film these days is effects-based, whether the end audience ever spots it or not," Simon explained. "And wherever that's happening, our tools are in use. But it's not just the major features either – we get usage right across the scale, not to mention television and commercials effects work."

Founding the future

The Foundry has put a huge effort into stereo 3D support while others have held back. And what a pay off! When asked what the most exciting use of their products has been so far, it was no surprise that the award-winning *Avatar* would pop up in conversation. "Every year you'd get a different answer," Simon replied. "Over the last 12 months it has to be the validation of the stereo 3D support work we did for Weta Digital on the *Avatar* project. Because we already had a good relationship with Weta's team, we were prompted by them in 2007 to look at the stereo 3D workflow needed to get stereo effects compositing working on a large feature film." The Foundry gained a lot of clients from the effects vendors on *Avatar* and, as such, this set the company in a prominent position amid the 3D explosion. Simon teased with information that they're involved in another project... that can't yet be revealed. More suspense, but no doubt the results will not disappoint.

Asking Bill, as CEO, what his prediction for the future of The Foundry looks like, he replied simply: "Nothing short of awesome." If the last 12 months are anything to go by, then who could possibly argue?

> "We keep on top of things by not getting to sit down much" **Bill Collis,** CEO at The Foundry

The history of The Foundry

1996
Bruno Nicoletti and Simon Robinson established The Foundry

2004
The Furnace plug-in toolset was released on the Shake compositing system

2007
The research team won an AMPAS Sci-Tech Award for the technology behind the Furnace product

2007
The Foundry, taking over development from the Digital Domain team, released the first Nuke

2008
Nuke was released with stereo support and the first version of the Ocula stereo toolset was also launched

2009
A management buy-out confirmed the strategic importance of the company, as well as sending out a clear message on its stability

2009
The Foundry began collaborating with Sony Pictures Imageworks on the Katana technology

2010
The Foundry began collaborating with Weta Digital on the Mari technology soon to be released

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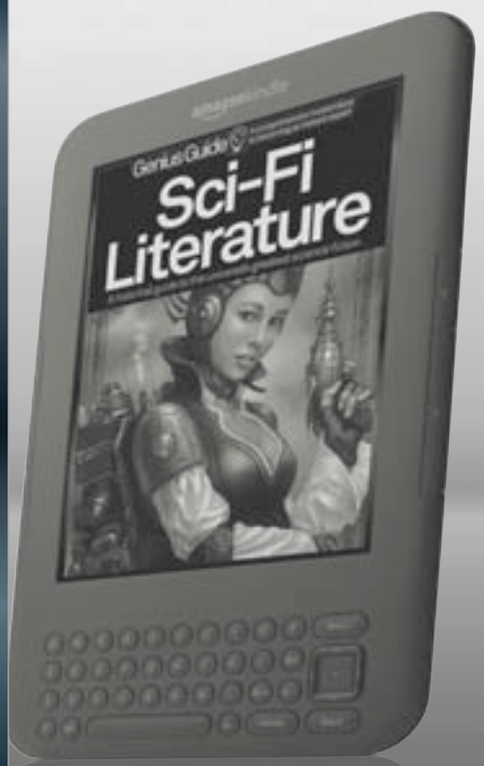

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Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Daniel Schmid

3DArtistonline
Username: DanielVFX

Personal portfolio site
http://danielvfx.cgsociety.org

Country Mexico

Hardware used
Dual Xeon quad-core 2.33GHz 8G RAM

Expertise Daniel's work includes shading, texturing and rendering. He is a co-founder of Exodo Digital Workshop

Modelling, Lighting, Texturing

Software used in this piece

3ds Max · mental ray · Photoshop · ZBrush

WELL DONE

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Step by step: Create Pixar-style artwork Well Done 2010

> Create a cartoony character with vivid colours, which is both charming and visually appealing to the viewer

Daniel Schmid specialises in lighting, rendering, shading and texturing

This is a quick tutorial based on the creation of the image *Well Done*. The idea came from our concept artist at the company, Salvador Ramirez (http://www.reevolver.deviantart.com). The minute I saw the concept drawing I started to visualise it in 3D. Soon I had fellow workmate, Omar Sealtiel (http://omarsealtiel.blogspot.com), interested in modelling the character so I could work on the textures, shading, lighting and rendering.

My main focus was to experiment with lighting techniques I hadn't previously tried. I wanted to achieve a Pixar look, and also to give the viewer a pleasant image full of bright colours and with a good composition. I dedicated a lot of time to the smallest details such as lighting tone, texture quality and overall mood so the image could ultimately exude a warm feeling.

Designing the girl

Inspiration behind the scene

01 **On a visit to the school** where my sister teaches, I notice how nice it is to see the kids at play and enjoying themselves. It makes me think to myself, "If this works for real life, it could make for a fun digital painting as well!" Once back home, I draw this little girl from memory.

02 **I use primary colours** and funny proportions to enhance the cuteness of the character. I also search for references that I correct later to give me a nice guide so that I can paint the textures as clearly as possible. The overall aim is to make her look interesting and mischievous.

03 **I end up with this** beautiful girl with pigtails who I feel is reminiscent of Pixar-like characters. All she needs is to be given a few articles that will tell us something about her and make her look more natural – hence the star on her forehead and those yellow rubber boots. Concept complete!

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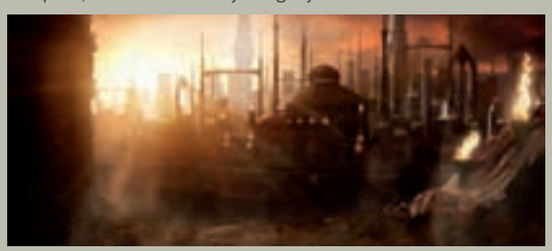
Artist showcase

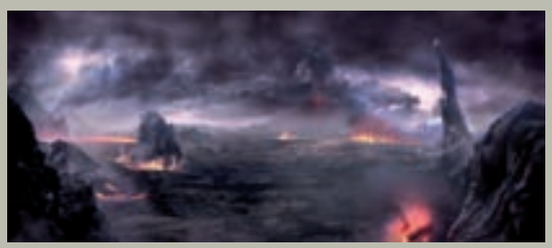
Daniel Schmid

I have worked as a 3D artist for nine years in several animation studios in Mexico. In the last few years, I have specialised in lighting, shading and rendering. Now I work as CG leader giving the final look to work at Exodo Digital Workshop of which I'm a co-founder.

La Hacienda **3ds Max, V-Ray, Photoshop (2004)**
The inspiration for this scene came from stepping into Guillermo Fernandez de Castro's lithography shop one day, and thinking it would make a nice render. This scene took about two months to complete, because I was only using my free time to work on it.



The Barren Citadel **3ds Max, Photoshop, mental ray (2008)**
This was the result of an eight-week matte painting workshop I took with David Luong. All the city was modelled and roughly textured in 3ds Max. The final matte has four passes: Global Illumination, Ambient Occlusion, Z-Depth and Volumetrics.

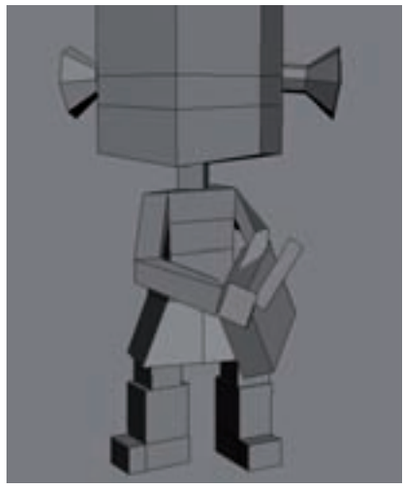


Magma Memories **Photoshop (2010)**
This is the first from a series of three matte paintings I have to complete this year. I'm trying to experiment in natural landscapes and then hope to move on to urban landscapes. This is my first matte painting in which no 3D was used at all, just pictures.

Creating the model

How the figure was created

Character model by Omar Sealtiel

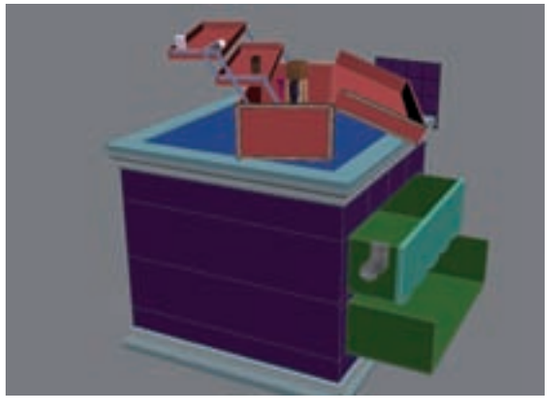


04 **To properly define** volume, I model from general to specific; this way, I can draft the main attributes of the character. As the goal is to produce a still image, I model the character in her final pose. The downside of this is that this makes the texturing process more complicated.

06 **After I've polished** the loops of the basic model topology and creases in the cloth, I export the character to ZBrush. There, I minimise the perfection by reducing the model's symmetry, giving a more organic look. I export from ZBrush with three subdivisions.

05 **For the hair, I use** planes to define the primary locks. After this, I add smaller planes ready to start populating, repeating this process over and over until the point in which I use renderable splines to add finer details to certain areas, eg the pigtails.

07 **The model of the background** needs to be simple yet visually appealing. My colleagues and I think through the elements of the scene for a good composition. After a few tests, we decide to go with a wooden floor, a simple wall, a bureau and a make-up box.



08 **The background is quite easy** to model as the furniture topology is fairly simple. The model is made using primitives. For the edges, I use a Bevel profile, and likewise for the make-up box. As for the concertina supports of the box's lid, I use a shape with an extruded spline.

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Finishing the design

Giving the character the Pixar look

09 **My main goal** in this image is to work with the skin shader and this is what I dedicate most of my time to. I've discovered from previous projects that there must be well-established lighting before testing the shaders. This is why I build a rough lighting setup before anything else.

10 **I always thought** the lighting of the piece should be subtly contrasted; this way I can get delicate light bouncing in parts where visual attention is critical. The lighting setup is the basic 3-point light formula: a light simulating the sun, a Fill light in the left side and a Back light simulating the reflection off the wall.

3 hours render time
Resolution: 2,688 x 3,500

11 **After I define** the scene's mood with a basic lighting setup, I focus on the skin shader. I use the SSS Fast Skin shader, which can be found on Zap Andersson's blog (**http://mentalraytips.blogspot.com**). This shader gives you more control over reflections and also the material specularity.

12 **When I'm happy with** the overall look of the shader, I proceed to texture the most complicated elements of the scene such as the sweater, the bag and the skirt. This means I can get a rough idea of how all the elements are working together and also check if some tweaking is needed in the texture values or the lighting setup.

13 **After I texture the background,** I work on the paintbrush in her hand. For this I create a new file so I can control the lighting and rendering parameters properly. The last step is to gather everything in Photoshop in three layers: the character, the background and the brush. With a few final tweaks, I have the result I want.

Colours and materials

The biggest challenge for me in this image is to achieve the look I have visualised with the combined effects of the lighting, skin shader and the character's clothes. If we look at the original concept art, one of the main characteristics of the little girl is her multicoloured sweater. As a result, its modelling turns out to be a significant element as I don't want it to look too rigid or heavy. This is why I decide to go to town with the knitting texture. I achieve this with a good Bump map and some fine tweaking in the Diffuse channel.

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Step by step: Add textures and light to objects Flight of the Raven 2010

> Jade Raven was originally designed to be a subject in my next book, 3D Modeling in Silo, which is due out in October 2010

Antony Ward is a game developer and animation expert

When designing Jade Raven, the Rocket Girl, I had to find a concept that fit in with what had to be covered in the book. She needed to be both organic and have hard surface elements, plus I didn't want to go down the route of the cyborg, or mutant hybrid, which has been done many times before. Instead I wanted the character to be almost normal in appearance, but with an added something. In the end I decided to take inspiration from the past, rather than the future and give her everyday clothing and a powerful rocket pack, all styled with a retro twist. Once the main model was complete, I only had a short amount of time to get her ready for the cover, so I opted to output a quick Maya render and add in most of the details in Photoshop during postprocession. It's this process, and the shortcuts I used, which I will share in this tutorial.

Designing the Raven

Retro Fifties inspiration

01 Because the purpose of this character's creation is for a tutorial, her initial design has to cover both organic modelling and hard surface modelling. She also has to be visually appealing so the reader would actually want to recreate her.

02 To cover organic modelling we make sure we first create a full figure, which can be reused on numerous future projects. We then strip her down and dress her in loose clothing, which will initially be modelled, and then have more refined cloth details sculpted in later.

03 So the reader also experiences Silo's hard surface modelling tools, we add a simple rocket pack to her back, a helmet and also a pistol for her to hold.

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Modelling
Rendering
Lighting

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Antony Ward

3DArtistonline
Username: Anchuvi

Personal portfolio site
www.ant-online.co.uk

Country UK

Hardware used
Core 2 Duo 3.16GHz
8GB RAM

Expertise Antony has expertise in game artwork and animation, character and vehicle modelling, and rigging

Software used in this piece

Silo · Maya · Photoshop

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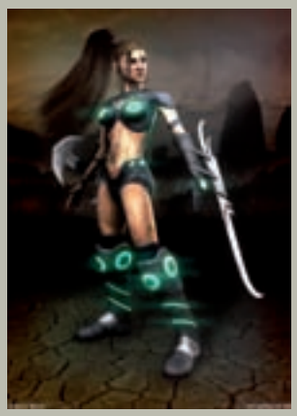
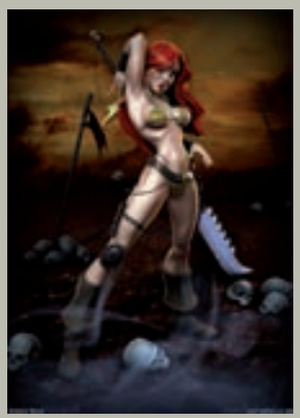
Artist showcase

Antony Ward

I've been working in the games industry for close to 16 years now and have been freelance for the last three. During this time, I have worked for some of the biggest companies in the industry and have experienced nearly all areas of game development, with character modelling, animation, MEL scripting and rigging being my areas of choice.



Athria **Silo, Maya, Photoshop (2009)**
I decided to brush up on my game art skills and create a real-time character from the ground up. I wanted to create someone with a futuristic feel; Athria was born. She was built in Silo and then made 'game ready' in Maya with all texturing done in Photoshop.

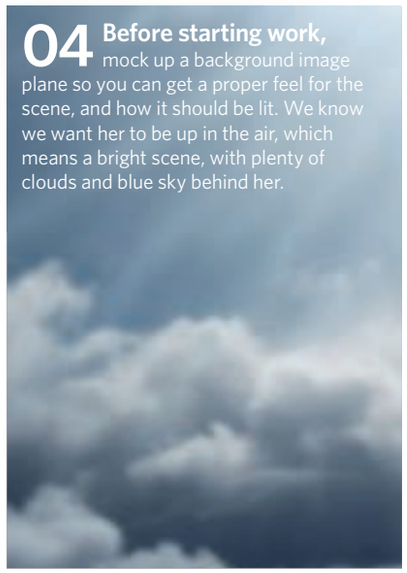


Red Sonja
3ds Max, Silo, Maya, Photoshop (2008)
For this image, I took an existing 2D concept and brought her kicking and screaming into 3D, using similar methods I adopted for *Flight of the Raven*. I was looking to develop my high-resolution modelling skills and this seemed like a natural step forward.

Kila **Maya, Photoshop (2004)**
Kila is one of the characters I created in my first book, *Game Character Development with Maya*. This was back before Normal maps and sculpting became commonplace in the games industry meaning the model and textures were among some of the key areas to focus on.

Materials and textures

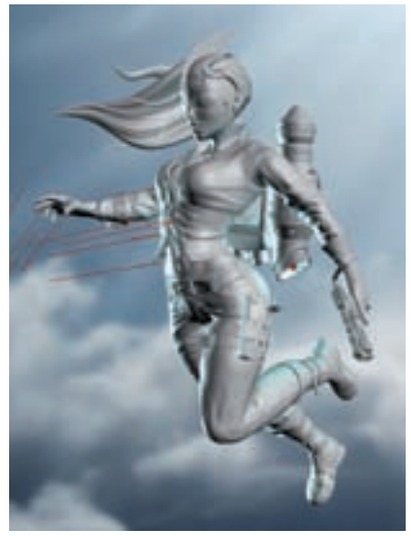
Giving the character the right look



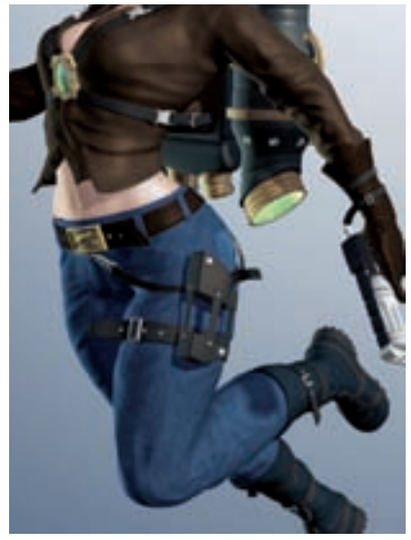
04 **Before starting work,** mock up a background image plane so you can get a proper feel for the scene, and how it should be lit. We know we want her to be up in the air, which means a bright scene, with plenty of clouds and blue sky behind her.

06 **Next, set to work on the main** colours for each element. Her body will be the trickiest part as we're looking to create more natural skin tones, so we'll work on these first. We opt to use Maya's misss_fast_skin_maya shader to achieve a subtle Subsurface Scattering effect.

05 **The next job is to nail** the lighting and the camera position. Having these and the background in place will help dictate the final look and feel of the image. It's also important to add lights to the base of the rocket as we will later be painting in the flames, which naturally emit light.



07 **Now move on to** the rest of her clothing, first blocking in the main colours you want before adding subtle reflections to her visor and metallic areas. To add more detail, we also apply basic tileable Texture and Bump maps to her jeans and jacket, to give them more of a denim and leather appearance.



08 **The final step is to** apply a rim lighting layer to the materials. As this scene is shot in the sky, you want to add lots of ambient lighting, which the Rim light does perfectly. It also helps to pick out details previously lost in the shadows.

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Lighting plans and rendering

Apply the finishing touches

3D Modeling in Silo shows in detail how to create Jade Raven from concept to final model. The book is published by Elsevier and is due out in October 2010.

09 Rather than try to achieve a final render in Maya, we wanted to have complete control over how each element looked. To do this, render out various layers of the image, which you can then combine in Photoshop and tweak as much as you like.

Postproduction work

Once all the layers are in Photoshop, it's time to start work refining and tweaking the colours, as well as painting in more detail. We focus on the hair first, almost completely redoing it, as the 3D model is too flat. This also enables you to add more depth and highlights around the edges. Next, move on to her body and clothing, repainting her lips and eyes before adding the seams into her jeans and jacket. The final steps are to enhance the background and tweak the overall shading and lighting.

10 Next we render a full-scene Ambient Occlusion pass, also including the main lighting from her rockets. Because she's in flight, we place a basic Polygon plane, which isn't rendered, beneath her so the photons can reflect back up onto her lower half. This adds much needed depth and detail to the render.

11 Once applied, the Ambient Occlusion pass will darken the existing rim lighting, so you need to next render a rim lighting layer which will brighten everything back up. To do this, simply make the existing Rim light white and turn the materials black, using the resulting image as a mask.

12 Finally you have to decide on which areas you need to mask off and create masks for these. The whole body is an obvious choice and enables you to isolate the character renders from the background, but you can also add a mask for her skin so you can work on it separately.

13 With all the layers rendered, it's time to bring them into Photoshop and organise them into separate layers. The character's now ready for final editing adjustments.

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I made this...

Incredible 3D artists take us behind their artwork

Artist info

Stefan Morrell

Website http://stefan-morrell.cgsociety.org
Country New Zealand
Software used 3ds Max, Photoshop, finalRender

"This was my first image rendered on a 64-bit I7 PC and the speed increase at 64-bit was awesome! Another bonus was that the I7 gives an extra four render buckets on top of the four you already get from a quad-core. As rendering was so easy, I chose to render at 6K, as well as several passes. Render time was about four hours"

"When lighting outdoor scenes on a large scale, it's important to use some kind of atmospheric perspective – the effect of objects becoming less contrasted and less saturated at a distance. Particles in the air create this fuzzy effect. I used finalRender's Physical Sky and a Direct light (for volumetric effects)"

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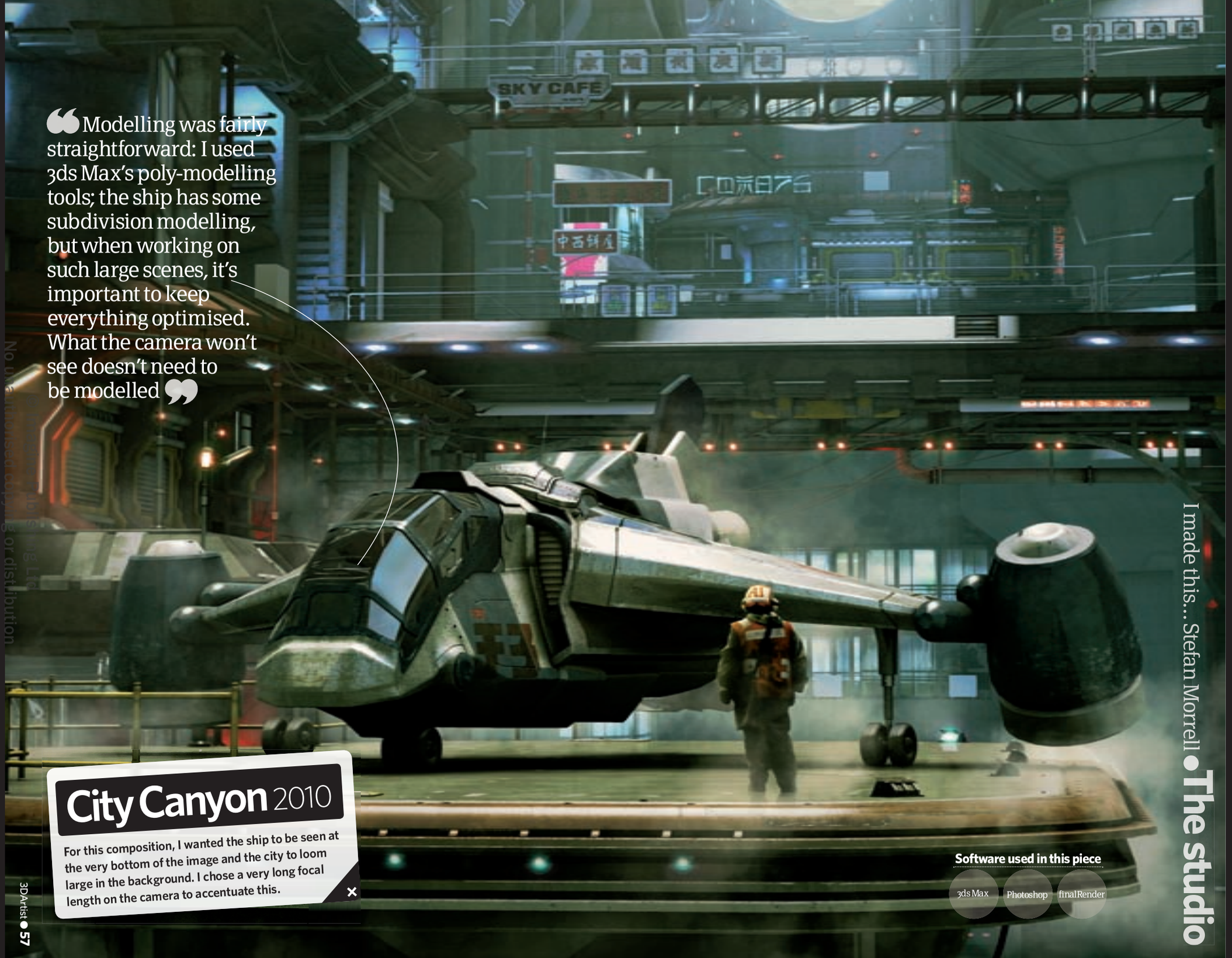

“Modelling was fairly straightforward: I used 3ds Max’s poly-modelling tools; the ship has some subdivision modelling, but when working on such large scenes, it’s important to keep everything optimised. What the camera won’t see doesn’t need to be modelled”

City Canyon 2010

For this composition, I wanted the ship to be seen at the very bottom of the image and the city to loom large in the background. I chose a very long focal length on the camera to accentuate this.

Software used in this piece

3ds Max · Photoshop · finalRender

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Modelling, Painting

Software used in this piece

Poser | DAZ 3D | Vue Pro Studio | Photoshop | Apophysis

This tutorial describes the working process behind my portrait, *Pardon*. I used several objects and textures from the library in DAZ Studio 3. In addition to Photoshop, I utilised Photoshop's virtualPhotographer filter and the Rons Pinstriping brushes. For editing in Photoshop, I also used a Wacom tablet. At the beginning of my art projects, I often only have a rough idea of the final result, without any exact vision. My policy is more intuitive than conceptual. I experiment with a range of varied equipment before I decide upon a definite procedure. However, in the interests of establishing a chronological order to my workflow, I will waive some of the experimental steps in this guide. As with all of my portraits, the gestures and, above all, the facial expression and look in the eyes are the most important elements for me. From the start, I had quite a clear impression of what I was trying to achieve with the image, even if the picture itself was not already formed in my head – this aspect evolved as the project progressed.

Portrait masterclass

Pardon 2010

> In this portrait, expression and gestures are of great importance when it comes to depicting a realistic face with a touch of fantasy art

Majorgaine is a freelance illustrator

behind the scenes

3D artists explain the techniques behind their amazing artwork

Artist info

Majorgaine

Personal portfolio site www.renderosity.com/mod/gallery/browse.php?user_id=443303

Country Germany

Software used Poser, DAZ Studio, Vue Pro Studio, Bryce, Apophysis, Photoshop

Expertise Majorgaine specialises in portraits and landscapes, as well as fantasy and sci-fi styles

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Building up the portrait

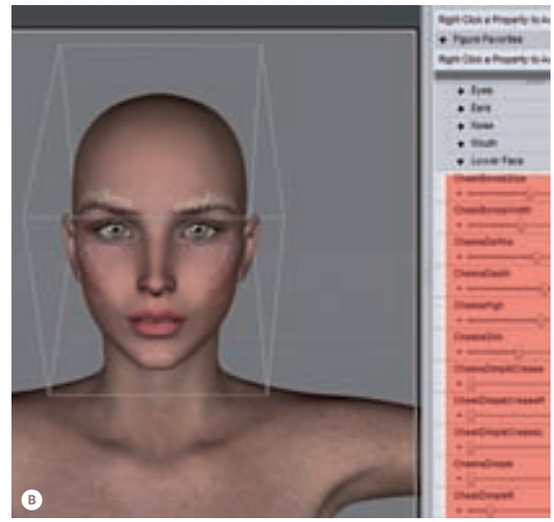
Arranging the scene in DAZ Studio

01 Figure loading and morphing

The first step is to open DAZ Studio and load Victoria 4. Next you have to load the morphs of the figure. For this, we used the Poser library, which you can find in DAZ Studio. When you install DAZ Studio, search for all the compatible folders and it should appear in the content column. To use the Poser library, go to Figures>DAZ-People>Victoria 4.2. Then go to Poses>DAZ-Victoria 4>Morph Injections>INJ Morphs++ V4 A.

02 Choose your character and the textures

Now you have to pick a character and a texture from your library. Proceed as the following: Poses>(choose the character you want) Tosca>Farissa>Poser MATS>2BrowsBrown. For changing the eye texture, go to Poses>Tosca>Farissa>Poser MATS>3Eyes B.



A Load the figure and the morphs into DAZ Studio

B Choose the character and the textures of the figure

C Modify the character of the figure

D Dress the model and add hair and jewellery

03 Modify the character

The next step is to remodel the face. For this, go to the scene and choose the figure's head by opening the folder until the head appears (or select by clicking on the face). Zoom in on the model. In the Parameters palette, it's possible to modify particular features for expressions and visemes (facial cues which represent speech sounds) C.

04 Add clothing, hair and jewellery

Next you can choose hair, clothing and accessories from the library and adjust to the figure. For the dress, follow: Figures>V4 Morphing Clothes>Fantasy Dress>Fit to blMilWom_v4b, 2. For the hair: Figures>AprilAoife>Aoife> Victoria4>Fit to blMilWom_v4b, 3. For the jewellery: Figures>DAZ's Victoria Clothing>V4_FantasyCollarBig>Fit to blMilWom_v4b, 4. And finally, for the crown and earrings (first choose the figure's head), then go to: Props>Chex>Psyche Jewels>Crown and Earring L D.

Problems and solutions

To be able to work with DAZ Studio, you have to start by equipping the library with objects and textures. The figures get loaded morphs and, from that point, you can alter the face and body. If you have Poser, you can use its library within DAZ Studio, which is what we did for this piece of work.

The library contains figures (people, clothes, hair, etc) as well as poses and textures and lighting scenarios, which can be adapted to the particular scene. The main job is nevertheless the editing of the rendered picture in Photoshop. Because we're not only trying to make the image as detailed as possible but also give it a touch of fantasy, we use a graphics tablet which enables us to work in great detail. In addition, we use Photoshop's extensive tools such as colour adjustment, the amendment of contrast and posterisation, layer options, and the different brushes and filters.

Of special importance is to work with transparent layers. It is worth noting that this tutorial refers to the particular objects, textures or Photoshop plug-ins within our library, so you'll have to use similar items from your own libraries and a little intuition to complete this exercise.

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Objects and textures used

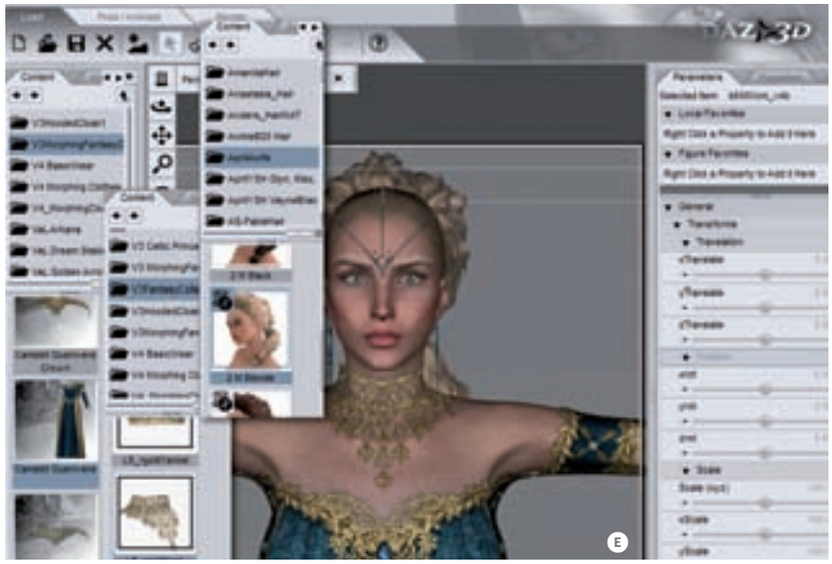
We used the following objects and textures within the scene.
From DAZ 3D: Victoria 4.2 Base, Victoria 4.2 Morphs++, V4 Morphing Fantasy Dress, V4 Fantasy Collar, Aoife Hair, V3 Fantasy Collar Set, Once Upon A Time: Camelot, Farissa for V4
From Renderosity: Psyche Jewels

Finalise the scene

Pose and light your model

05 Texture clothing, hair and collar

Now take the textures for the dress, the hair and the jewellery from the library. Beforehand, make sure you have clicked on the particular object you want to texture. For the dress: Poses>V3MorphingFantasyDress>Camelot Guenivere. For the hair: Poses>AprilAoife>2M Blonde and for the collar: Poses>V3FantasyCollarSet (E).



(E) Changing textures of the clothing, hair and collar

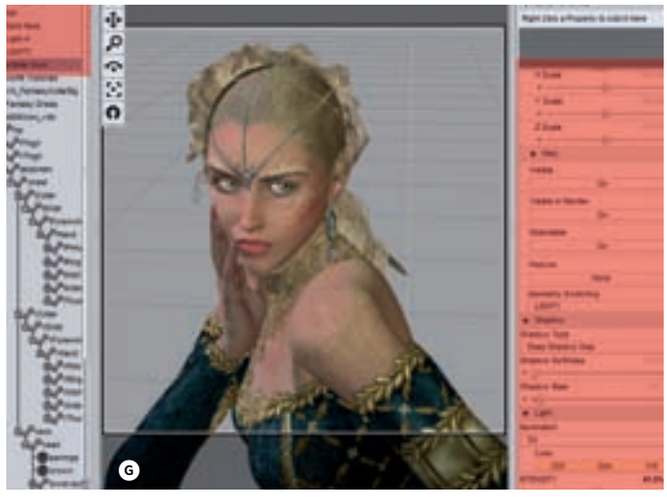
(F) Change the camera justification and pose the model

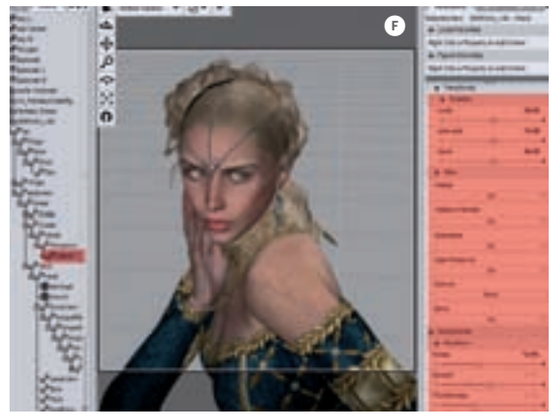
(G) Choose and edit lighting for the scene

(H) The render setup for the final render image

07 Choose and edit the lighting

The basic lighting for this image was reused from an earlier project. For this portrait, we modified the lighting until the face was best illuminated. Now you have to choose each and every light in the scene layer and modify it in the Parameters palette for Intensity, Color and Shadow Type (note the Deep Shadow Map has a much shorter rendering time). You can also adjust the distance and rotation of the light. To check the lighting effects, do several trial renders (G).



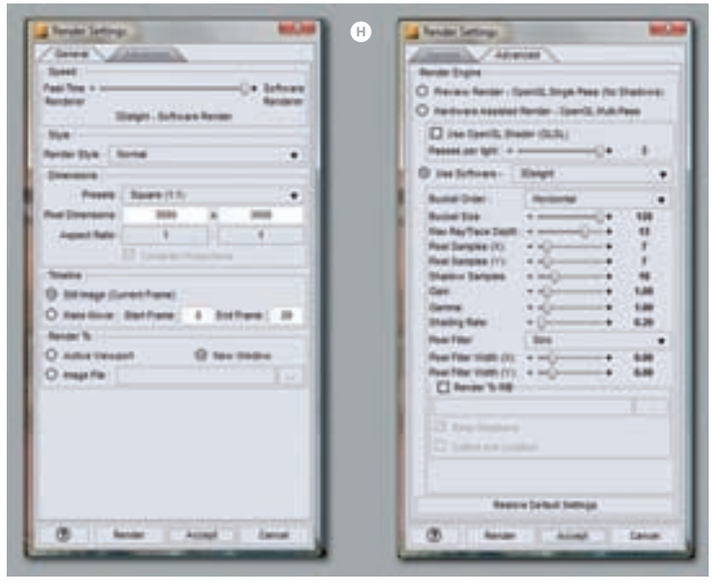


06 Pose the model

Before posing the model, choose a camera perspective for the final scene with the default camera. Select a pose from the library which is as close as possible to what you have in mind for your final result, then adjust the pose until it fits your scene. If you can't find one that's appropriate, pose the figure yourself. For this, use the controller on the Parameters palette. You'll find that for every part of the model there are the options: Twist, Front-Back, Up-Down or Bend, Twist, Side-Side (F).

08 Render Settings and rendering

After posing the figure, choosing the camera perspective and finishing the lighting, the image can be rendered. For the rendering options, go to Render>Render Settings. Here you can adjust the format and size of the picture. For this portrait, we choose 3,000 x 3,000 pixels. Check New Window to render the picture in its own window. We also switched the rendering option from Fast-Time Renderer to Software Renderer for the final rendering. All other adjustments can be seen on the screenshot (H).



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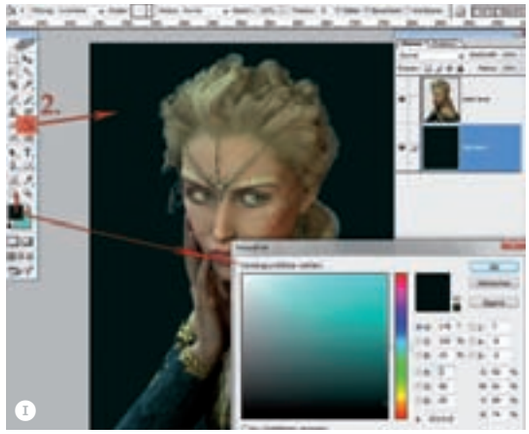
Painting in the details

Start to edit with Photoshop

09 Load the basic render into Photoshop

The basic render you just completed in DAZ Studio and saved as a PNG file, has to be loaded in Photoshop (File>File open>Folder>Image (Pardon basic render)>Open. Next you need to cut the image with the Crop tool. Create a new layer and name it 'Background layer'. Now you have to pull this layer with the cursor under the Layers palette, before choosing the colour for the Background layer and fill using the Paint Bucket tool I.



I

10 Adjust the contrast

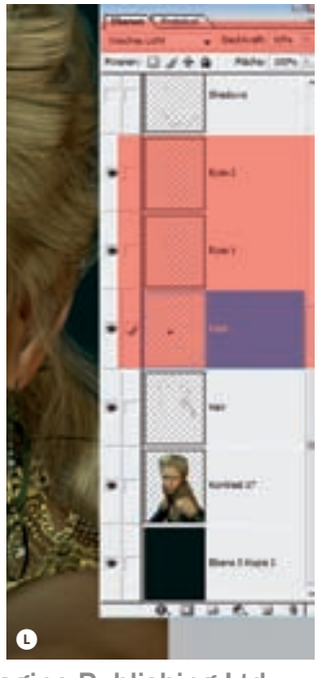
The next step is to increase the contrast to give the portrait more brilliance in colour. At first, you're only doing this for the basic layer – the one that the portrait is on – so select this layer again. Proceed as follows: Image>Adjustments>Brightness/Contrast and increase Contrast to 17 J.

J

K

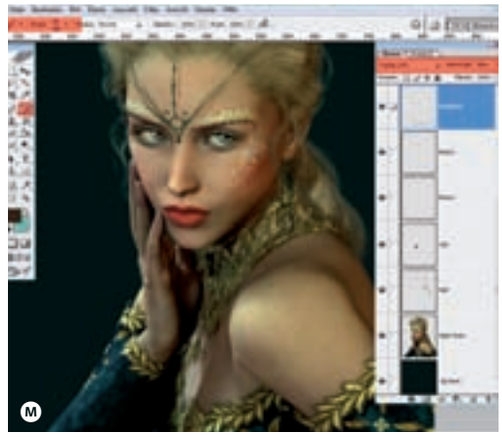
11 Paint the hair

One of the most complex and detailed steps is editing the hair. To manage a look that is as natural as possible, you have to draw single wisps of hair on special layers. For this, initially use a brush size of 3-5px, and after choose the basic colour of the existing hair with the Eyedropper tool. Now you have to draw several wisps of hair line by line. Afterwards, add shadows and then highlights to the hair with a brush size of between 1-2px. At the end of the process, hair which is not needed can be erased on the basic layer with the Eraser tool K.


L

Where to find the objects and other equipment

Objects and textures for the DAZ Studio or Poser library can be downloaded from www.daz3d.com, www.runtimedna.com, www.renderosity.com or www.xurge3d.com. DAZ Studio itself is a freeware program and can be downloaded from its website. Rons Pinstriping can be bought from the MarketPlace at Renderosity.


M

12 Edit the eyes and lips

Now you can edit the eyes and the lips. For this, make three separate layers (using the process described in Step 9). On the first two layers, change the eye colour, for example, from green to blue – for this, use a hard brush with a small diameter. Choose a colour and an in-keeping blending mode (in this case, Hard Light). The same steps can be performed for the lips layer, but this time with Soft Light blending L.

13 Separate layer for shadows

To gain a greater 3D effect, make a separate layer for the small shadows, which are cast on the skin by jewellery and clothes. With the airbrush (Diameter approximately 200), you have to hem the jewellery and the clothes on this layer. For this, choose a colour which is similar in shade to the figure's skin, but darker in tone. Then, add a Hard Light blending mode. Colour which was accidentally drawn over the edges of the clothes can now be removed carefully using the Eraser with a low-diameter brush M.

I Create a new layer and tint it

J Adjust the Contrast for greater colour intensity

K Paint more detailed hair on a separate layer

L Edit lips and eyes on different layers

M Create a new layer to paint shadows for the dress and jewellery

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Artist Showcase

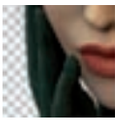
Majorgaine

Born in 1962 and raised in East Berlin, I acquired all my artistic knowledge and skills through self-study since I refused to study arts because I opposed the ruling regime. Today, I'm a freelance illustrator and graphic designer. Since 2004, I've delved into the digital arts, especially renderings.

Porcelaine **Poser, Photoshop (2010)**
This portrait is made with Poser 7 and edited with Photoshop. It shows the contrast of skin shining like chinaware and the various violet colour tones

Can't Fight This Feeling **Poser, Photoshop (2008)**
This is an image made with Poser 7 and edited with Photoshop, showing the DAZ Michael 4 figure. The tattoo is completely made with brushes in Photoshop

White Elf **DAZ Studio, Photoshop (2008)**
This is a simple render with DAZ Studio 2. The whitening effect was achieved in Photoshop with the Levels Eyedropper option



Keep on painting

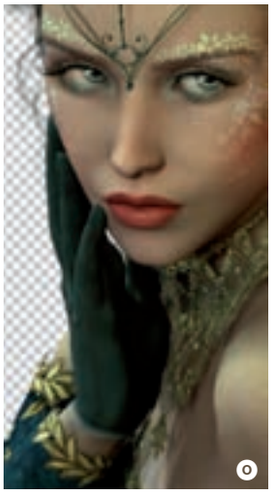
Continue to add painted details

14 Edit the shoulders

Since DAZ Victoria 4's armpits are set too high, they have to be edited to increase realism. For this, use the following tools: Healing Brush (Diameter around 100) and airbrush (Diameter around 300). First of all create a new layer. With the Healing Brush, hit Opt/Alt and a relevant part of the skin, then draw over the parts that need correction. With the airbrush, you can level the differences in the colour N.

15 Paint the glove

Now create a new layer for drawing the glove. First of all, choose a basic colour for the foreground of the glove. The Opacity of the glove layer should be made approximately 75% to let the edges of the hand shine through – that way you avoid drawing over the edges. It's convenient to make the Background layer invisible during this step. With lighter and darker tones and the airbrush, you can add depth and light afterwards O.

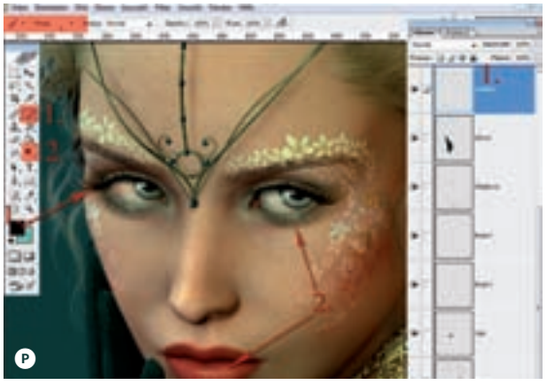


N Edit the model's shoulders and armpits with the Healing Brush

O Create a new layer for painting the glove

P Editing the eyes and lips and painting the lashes on another new layer

Q Combine all the layers and adjust the yellow tones



16 Re-editing the eyes

Before the next step, change the background colour once again. Now create a new layer to give the eyelashes more density. The colour should be nearly black and the Diameter of the hard brush 1-2px. Also add shadow and light effects to the eyes and lips on the basic portrait layer using the Dodge and Burn tools P.

17 Merge layers and adjust colour

To be able to work any further on the image, you have to merge all the layers together now. It's advisable to make a copy beforehand to save any previous work for a possible re-edit. To merge the layers, go to: Layer> Merge Visible and keep on working with the one layer. Next decrease the yellow tones of the picture by 40% (Image> Adjustments>Hue/ Saturation>Edit>Yellows) Q.

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Refining the portrait

Add finishing touches to your image

18 Use the virtualPhotographer filter

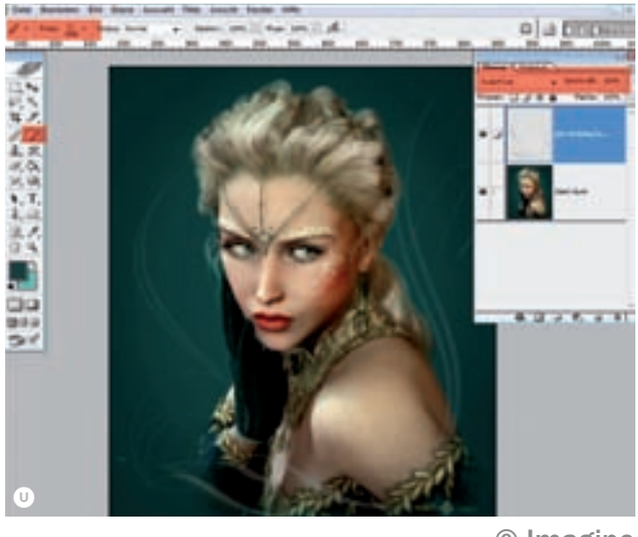
For the next step, we use the virtualPhotographer filter, which is not a basic inclusive of Photoshop but a third-party plug-in from optikVerve Labs. With this, we achieve a soft shine effect and a higher brilliance of colours. To keep the sharpness of the face, you have to double the layer beforehand (Layer>Layer Duplicate). After using the filter, the face can be erased to make the unfiltered layer shine through R.

20 Readjust the colour and light

After this, decrease the yellows again by about 40% to make it less dominant (see Step 17). Afterwards re-illuminate the whole picture with the rendering filter: Filters> Rendering Filters>Lighting Effects> Flashlight. Make the diameter larger than the picture, the centre as the middle of the face, all colours white, Intensity 13, Gloss -33, Material 100, Exposure 0 and Ambience 18 T.

21 Layer for applications

One of the last steps is to add some applications. We use Rons Pinstriping, which has to be installed additionally to the included brush presets. From those, we choose the Fitting Brush application and firstly put them on separate layers to individually resize and erase what's not needed. After this, all are merged in one layer (make the basic layer invisible for this). In Layers, apply an Exclusion blending mode U.



27 minutes
Render time
Resolution:
3,000 x 3,000

R Use the virtualPhotographer plug-in for a soft shine effect

S Hemming the image with a large airbrush in the background colour

T Colour adjusting once again and more lighting effects with Flashlight

U Create a new layer and use Rons Pinstriping brushes

V Create a thin frame and write the signature

19 Hem the image with the airbrush

The next step is to hem the whole image with a soft airbrush. The Diameter of the brush should be about 1,000 and the colour the same as the background. By choosing the soft airbrush, you'll gain a covering effect on the outer edges of the picture, but a transparent effect on the inner edges. You can do this step on a separate layer and merge this later with the one below S.

22 Frame and signature

Next, delineate with the Rectangle Marquee tool on a new layer. To make a thin frame, use the Subtract from Selection option. This way, you're able to delineate a second rectangle inside the first and then colour the space in between with the Brush tool. Lastly create another layer to add your signature with the graphics pen V.

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I made this...

Incredible 3D artists take us behind their artwork

Artist info

Morteza Najafi

Website http://mortezanajafi.cgsociety.org
Country Turkey
Software used Maya, mental ray, Photoshop, Shake

“Modelling was done in Maya using the poly-modelling method. This part took about three days in total, along with some help from my brother”

Software used in this piece

Maya | mental ray | Photoshop | Shake

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“I used six lights in the scene – one Directional and five Point lights – to create a noontime setting. To render, I used mental ray for Maya on a Xeon 8-core”

“I used some photos of the Grand Canyon (about ten) that I matched up in Photoshop, using Apple Shake for some of the compositing and colour grading. I was inspired by the movie *Thelma & Louise* (1991), so I tried to match the colour and model for that year”

Freedom 2010

This image is about a man who has escaped something, choosing death as his freedom for all time. It took about four days to create and the render time was around 20 minutes.

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Step by step: Modelling a neo-Renaissance girl

Neo-Renaissance Girl 2010

> Create a classical, 19th-century style portrait with a traditional painterly effect using Blender and Photoshop

Zoltan Miklosi specialises in character modelling

In this tutorial, the main aim was to create a close-up portrait of a young woman who is looking to the future in a traditional, painterly style; we particularly wanted to focus on capturing authentic clothing. We used Blender 2.49b's internal render engine to render out this image.

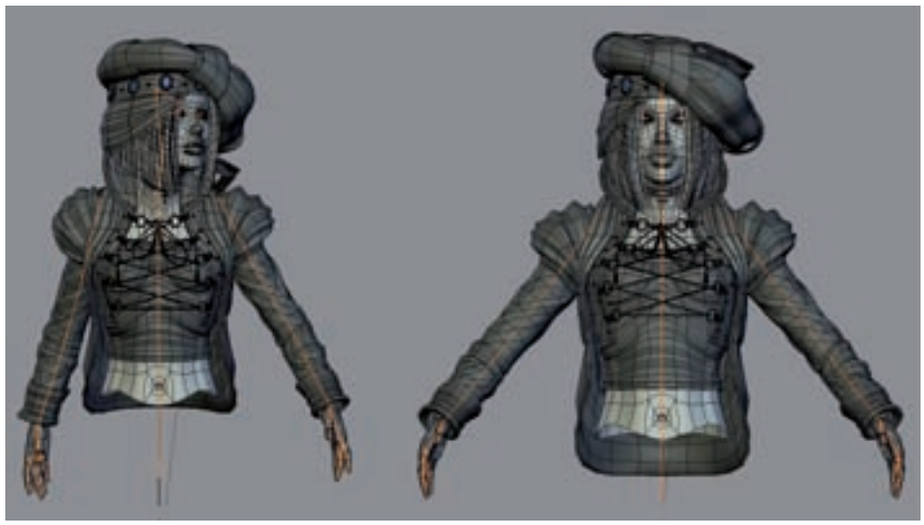
Post-work was done within Photoshop, as were the majority of the textures. The most difficult part of this piece was creating the hair, which is primarily made up of NURBS. After we finished the main bulk of her hair, we converted the hair strands into a mesh that could be textured. Next, we set an armature for creating an expressive pose; rigging is one of the best properties of the Blender program. There are several easy and logical ways to rig a model in Blender – with this character, we mixed the Weight Paint and Vertex Group options. Having painted the backdrop in Photoshop earlier, we set it in the background. The character was rendered using an Alpha channel to make things easier during the postproduction process. We didn't want this image to be photorealistic; instead, we aimed to create a traditional, hand-painted style portrait.

Designing the girl

Inspiration behind the scene

01 Before starting work on the image, study lots of fashion photos and comic books to find the most effective pose for your character and the lights that will illuminate her. Further key research is to study some Renaissance paintings to get to grips with the fashion of that era; for this piece, research is particularly useful for the dress and the hat.

02 This character was created some years ago, but we will transform her with this new concept, improving on the original by changing her hairstyle and making her clothing a lot more elaborate. The original version feels a bit sparse and simplistic, but we like the sparkling eyes of the character and want to take her forward into another project.



03 When you start to model the character's clothes, you might not have the exact colours in mind, but aim for a 19th-century style. When it comes to her pose, we try to express faith and hope in a better future. We find a similar pose in an old *Superman* comic, where he stands on a skyscraper, looking out to the horizon.

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Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Zoltan Miklosi

3DArtistonline
Username: Zooly76

Personal portfolio site
http://visualworks.atw.hu

Country Hungary

Hardware used
CPU: Intel P4 3.06GHz Hyper Threading RAM: 2GB
VGA: ATI Radeon Sapphire 3650 HD 512MB

Expertise Zoltan is a 2D/3D artist, specialising in characters

Modelling

Software used in this piece

Blender 2.49b

Photoshop

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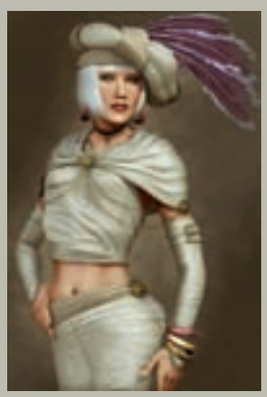
Artist showcase

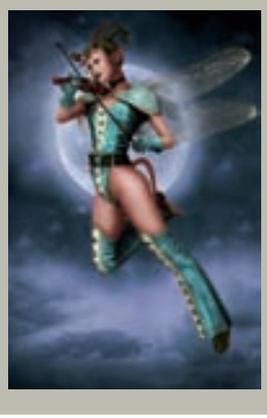
Zoltan Miklosi

I was born in Budapest in 1976. After high school, I learnt Foreign and Domestic Commerce at BGF College of Commerce, Catering and Tourism. 3D graphic design was just a hobby at that time. In 2005 I took a DTP operator course. My introduction to 3D art was in 2000, using 3ds Max 3. Finding this software too difficult at the time, I tried Blender instead and my love for this program has grown ever since.



Lady Feather **Blender 2.49b, Photoshop CS2 (2009)**
I think this is the best work I have created; it is definitely my favourite image. If I remember correctly, creating this image took about a week. As you can see, I used the same hat that is being worn by this tutorial's neo-Renaissance girl – never be scared to recycle

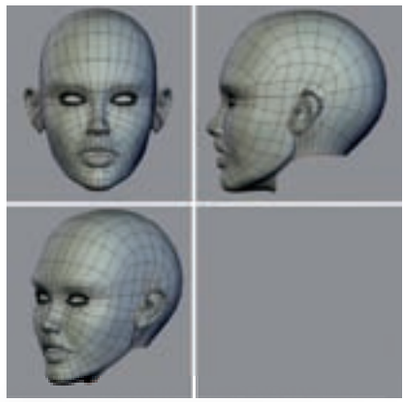
The Dark Prince **Blender 2.49b, Photoshop CS2 (2009)**
I was inspired by the game *Prince Of Persia* when making this image. I have tried to create a dark, macho character. Once again, his hat is the same one used on the neo-Renaissance girl



The Violinist **Blender 2.49b, Photoshop CS2 (2009)**
Fairy tales are one of my favourite areas to find ideas and inspiration for creating my artwork. These tales are full of strange creatures and it's a challenge to model most of them. Some day, I would really love to illustrate a whole fairy tale book in my own style

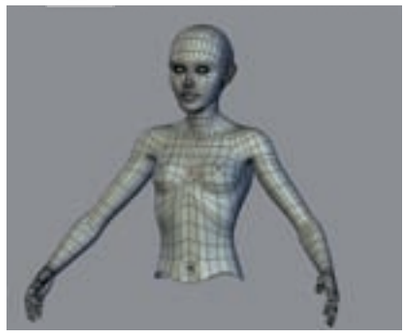
Creating the figure

How the girl was created



04 **We use two reference** photos – a front and a side view of a female head – to create the head of this character. The ears of the character are made separately, as are the eyes and eyelashes. Once you have finished the head base mesh, divide the head model into different parts with seam lines for unwrapping to the UV map.

05 **We divide the head object** into face skin, lashes and lips. Each part is another material with different textures – this technically makes this a multiple material object. We use Bump, Specular and Color maps on the model. As mentioned earlier, the eyes are formed and textured separately to achieve higher detail.



06 **The body of the character** is made in much the same way as her head. We use two reference photos and separate body parts for UV mapping (divided into torso, arms, hands, nails) with seam lines. After we texture the head object and the body individually, we attach them to form one object.

07 **Now the body of the character** is complete, it's time to dress her. Creating clothes is always a great challenge and is hugely determined by the concept and style of an image. Well-created, detailed clothes are half of the battle when it comes to a successful classical portrait. Start with the character's short coat.

08 **Model her coat** following the form of the model's body. The next step is to divide the coat with the seam lines for the UV map. With the seam lines in place, divide her coat into left and right arms, left and right arm ends, torso, collar and collar edge, cloak (green fabric), etc. Each part needs to be given a different material slot. Try to avoid using one universal texture map in a close-up portrait like this because the result can be blurry.

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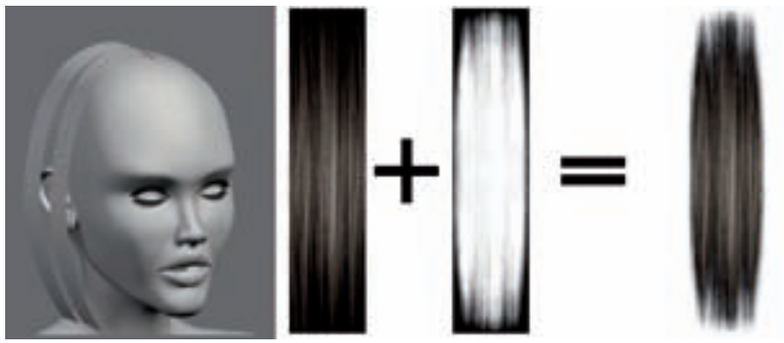
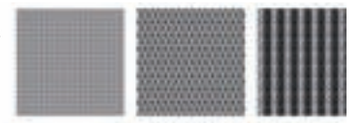
Finalising the design

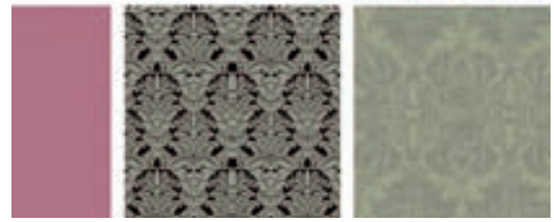
Details to make the portrait shine

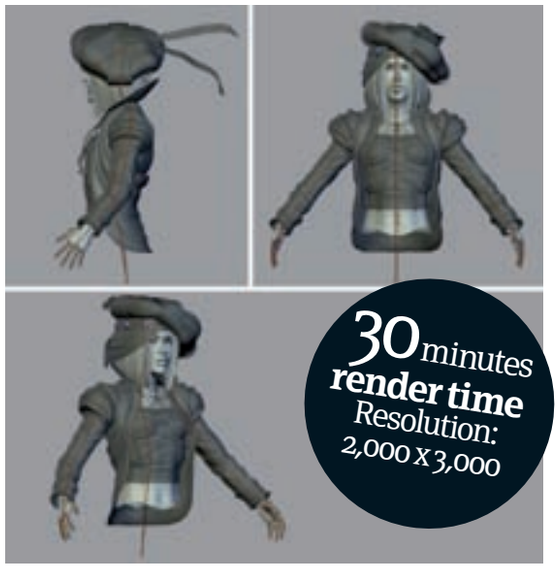


09 **We make the character's hair** predominantly out of NURBS. After you've set the proper shape of her hair strand by strand, convert the hair strands into a mesh which can be textured. We use a Transparency and a Color texture for each strand to add tonal depth. You can now attach the hair to the armature.

10 **Use small 512 x 512px size** tileable Color and Bump textures for the fabrics, setting their repeats to 25-30 and the Input to UV and Flat. This way is much easier to set the right size of the weave of the fabric. Also, close up the weave is much more visible and clear and follows the wrinkles and folds, which ultimately make the cloth more realistic.







11 **If you like to use poseable** characters and find rigging a nightmare, then Blender makes your life a lot easier, offering several simple ways to rig a model. In this case, we mix the traditional Weight Paint and Vertex Groups options.

Colours and materials

The final colours are chosen during some test renders. For the fabrics, we mainly use tileable Color and Bump map textures, rather than Tangent/Normal maps. Setting the skin material is a very exciting part of the process. We use SSS (Subsurface Scattering) alongside Color, Bump and Specular texture maps. To enhance the flesh effect further, we apply a Gradient Ramp from dark red to light red, with the blending set to Overlay.

12 **Lights serve to make the details** visible and give an individual ambience to an image. For this scene, we use 4-point Target Spot lights plus Ambient Occlusion. Only one of the lights – the main light – casts any shadows. Set its colour to light yellow and the other lights to pale-to-medium blue. For the shadows, set the shadow maps to dark blue and blur them. This lighting setup produces a realistic finish.

13 **We carry out the post-work** in Photoshop. First we render the character with an Alpha channel so that we can easily match the pre-made, hand-painted background behind the character. We replace the background as the anti-aliasing of the render engine has left it a little blurry. The last step is to give an impression of homogenous light to the whole image. To do that, use a preset Ramp within the Gradient palette. This step gives a cohesive atmosphere to the overall picture. We opt for a warm colour scheme to brighten the scene and to go hand-in-hand with the conceptual theme of hope.

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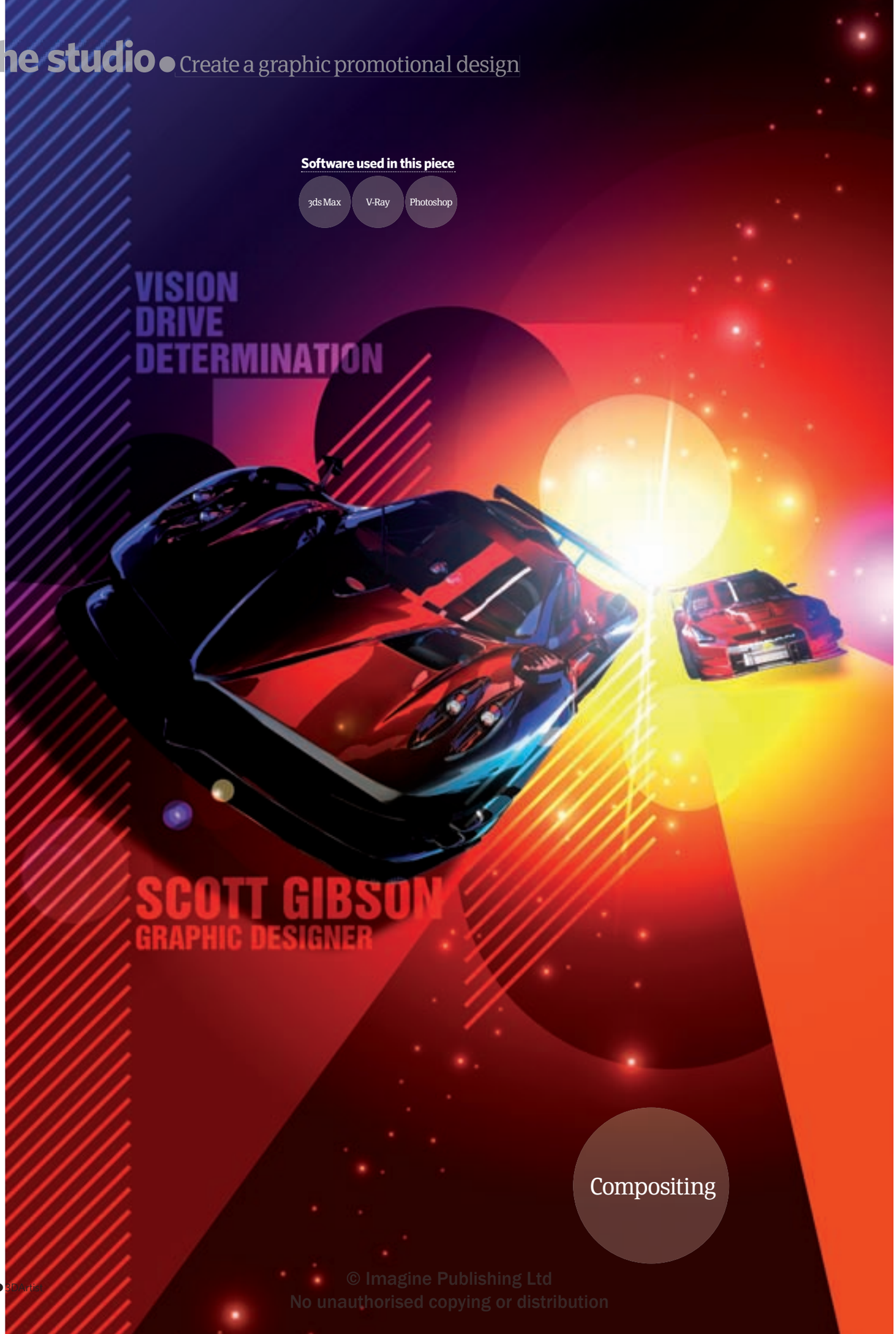
Software used in this piece

3ds Max | V-Ray | Photoshop



Compositing

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Step by step: Create a graphic promotional design

New Age 2010

"New Age was created on my course to act as the cover for my digital portfolio, reflecting styles such as De Stijl and Dada"

Scott Gibson specialises in compositing 3D models into a 2D world

This piece was actually created as the final project for my design history class at the Art Institute of Austin. Under the instruction of my professor, Barry Underhill, we were told to create an image to be used as our own personal portfolio cover, so it had to relate to and convey the kind of work we do and the kind of images inside. There was only one catch; we had to use the design movements we had been studying in our final design. Things like the Bauhaus, De Stijl, Constructivism, etc. We could pick and choose, mix and match, but some of those influences had to feature. I ended up using De Stijl, International Typographic Style and Dada in this composition. When it came down to the actual construction of the image, it wasn't as complex as people tend to believe. I first posed two of my old models, a Pagani Zonda and a Nissan GTR, and gave them some dramatic lighting. This was the most time-consuming part of the entire piece because, by the time I was done, there were 2.5 million polys to render at 4,500 x 4,500.

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Scott Gibson

3DArtistonline
Username: ScottG

Personal portfolio site
http://nitros-detox.deviantart.com
Country USA
Hardware used
Intel Core i7 920
6GB Triple Channel DDR3
Expertise Scott specialises in incorporating 3D elements into 2D environments

A picture is worth a thousand words

Choosing a focus and a memorable motif

01 The first step is to choose the subject matter or focus. To do this, choose several images from your portfolio(s) and lay them out together. Hopefully one of them will speak to you and thereby guide you in the next steps of design.

02 Next up is choosing a format. This is tough if your work is split between online and printed. On the one hand, working in RGB will save time, but on the other, CMYK can look really great on a glossy. We end up doing an 11 x 17" print.

03 The design is not going to work without a deeper message. This will be a representation of who you are and what you do. It has to be memorable. After all, this is the first thing employers will see.

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Artist showcase

Scott Gibson

I've spent the last five years honing my creative eye and perfecting my ability to integrate 3D objects into what would otherwise be 2D worlds. So my primary skills are not modelling but lighting, rendering, materials and postproduction. In addition to 3ds Max and V-Ray, I also use the Creative Suite, Vue and Poser extensively in my work.

Cruising the City
3ds Max, V-Ray, Photoshop, Illustrator (2009)
Cruising the City was created to push my skills to the limit and see if I could break the traditional 3D car composite. So I took a slow-shutter shot of downtown and worked in one of my favourite cars – the Koensigegg CCX.

Tokyo Escape
3ds Max, V-Ray, finalRender, Photoshop (2009)
This was the first time I had used both finalRender and V-Ray on a single image. The whole idea came about when I read about Ambient Occlusion passes. At the time, V-Ray didn't really have a way of rendering AO so I turned to finalRender which, in contrast, had a very nice AO rendering system. However, it wasn't so great for realistic paint materials so I continued to use V-Ray for the majority of the work.

Putting it all to work

Pose models and build the environment

04 First things first, we need our models posed. This particular pose is chosen as a result of the format decided on earlier. It's then rendered out in V-Ray at 4,500 x 4,500 – slightly larger than needed, but we want to have some room to play with the size.

05 Now we need to start building an environment for the cars to sit within. We already know it needs to be something completely new. So we're going to build it from scratch in Photoshop using Radial gradients and the Pen tool.

06 It's time to start building the foundation of balance and unity. We aim to do this with basic geometry, so we're going to introduce some straight horizontal and vertical lines and offset those with circles.

07 Now we can start to integrate the original render. Don't worry too much about re-creating the lights at this stage though. Just set the cars on a plane and give them each a shadow. The easiest way to do this is to duplicate the layer, paint it black and give it a Gaussian Blur. Then move it into place and adjust opacity as needed.

08 It's time to light the cars properly. We use a combination of Radial gradients and lens flares. First, create a gradient between the two cars (set to Linear Dodge). Then create a new layer filled with black, put a lens flare on it, but make sure it's in the centre of the gradient; also set this to Linear Dodge.

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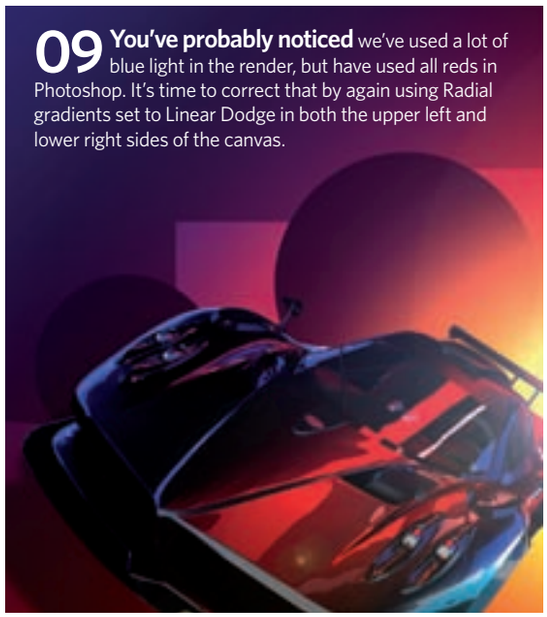
Putting it all together

Assembling the components



09 **You've probably noticed** we've used a lot of blue light in the render, but have used all reds in Photoshop. It's time to correct that by again using Radial gradients set to Linear Dodge in both the upper left and lower right sides of the canvas.

10 **Now the piece is starting to look** a little bland, so in order to spice it up we'll need to introduce some extreme angles. You might find it helpful to record a new action to space each new line evenly and then set them to Overlay to achieve the transparent look.

11 hours render time
Resolution: 4,000 x 6,182

11 **We're almost done, but before** we can go any further we need to add a title to the image. This is after all a portfolio cover so we want people to see the name of the collection and who created it! We also continue with the diagonals to create a nice flush border for the text and any binding that might be done.

12 **Because this is a cover for a portfolio,** we suggest including a signature design element. We add the Star Field glitter effect. It looks much more complicated than it is. It's just a bunch of flares set to Linear Dodge, started with a 35mm flare at 10%. We multiply it a few times, shrink it and then continue.

13 **Lastly we go in** and give the scene a few more details – two more circles by the main flare and two light streaks, again off the main flare. In this instance, we highly recommend adding and adjusting the Levels and Brightness/Contrast to boost the intensity of the image before printing.

Modelling essentials

There are a number of places where you can find your own stock models and/or free models. However, you have to be careful when you look because not all free models are stock. Someone still owns the image and the rights to it and, as a result, most free models are for personal use only. And then there are some people that will crack open game files and use their models. This happens a lot with all of the *Need for Speed* and *Grand Theft Auto* titles, etc. Two of my favourite places to find models which come highly recommended are **www.turbosquid.com** and **www.the3dstudio.com**.

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3DArtist

Masterclass

In the first of a two-part series, Christian Darkin investigates the ever-evolving world of 3DTV

A

> … if you overuse your 3D by making objects shoot right out of the screen, your images will quickly become very uncomfortable to look at

Creating stereo images

Stereoscopic 3D is the new big thing. 3D glasses are popping up in cinemas more and more frequently, Sky TV is commissioning 3D programming for new channels and even the World Cup is being shown in 3D in selected venues.

But stereoscopic 3D isn't new, and it isn't hard to produce. This month, in the first of two features focusing on 3DTV, we'll discover how to create work viewable through 3D glasses.

In essence, stereoscopic 3D is fairly simple. You have two eyes, separated by about 2.5 inches, so each gives a slightly different angle on the world. A normal still or video image looks 2D because both eyes are getting the same picture. If you can somehow give each eye a different image, you can re-create human vision much more accurately. 3D glasses of various kinds filter the light getting to the left and right eyes so that each receives a different image.

For 3D artists, this means creating two cameras in your virtual scene, focusing them on the same object and placing them a couple of inches apart. The resulting renders from each camera can then be re-combined (in a compositor if you're creating animation, or in an image editor if you're producing still artwork).

So far so good. However, in practice, there are a few considerations that will affect the quality of your 3D imagery.

The main problem with 3D – however it's shown – is one of perspective. Because there are two separate images, one being fed to each eye from two separate cameras, objects sitting at the point where those cameras focus (referred to as the convergence plane) provide the same image to each camera, so they're easy on the eye. However, as objects move forward or backward away from the convergence plane, the images for the left and right eye diverge, and the brain has to work harder to see them as a single image.

The result is that if you overuse your 3D by making objects shoot right out of the screen, or disappear into the distance, your images will quickly become very

A Most anaglyphs look rubbish when viewed without glasses, but if you keep your perspective down and colour correct, you can get a result that works with or without glasses

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Join the community at www.3dartistonline.com

Cheating

If you have very deep scenes, you may need to cheat either by rendering distant background objects as flat planes or by bringing your left and right-eye cameras artificially close together, thereby flattening your 3D shot. However, it's also worth thinking about whether you're effectively asking a viewer's eyes to do something they'd never do in real life (eg stare at an object placed two inches from their nose).

uncomfortable to look at. And it doesn't stop there. Because the bigger your images are when displayed, the larger the separation between the images will be and the deeper the perspective will appear. However, in reality, the distance between your eyes doesn't change, so you have to decide when making your image what the optimum viewing distance and scale are. In practice, this means you may need to play around with different perspectives if you intend to produce (for example) a cinema version and a TV version, or a print for a computer screen and a poster.

Further, because your two cameras are looking at the scene from different angles, they'll get a slightly different framing – so you'll always lose a stripe on the left and right-hand side of your field of vision. You can either solve this by skewing the camera view (Max can do this easily by applying a Skew modifier) or by simply rendering a slightly larger image than you need, and zooming in when you composite the shot.

There are several ways to get your 3D content to an audience. By far the easiest to deliver is anaglyph 3D. Here, the viewer wears glasses with coloured lenses – usually red and cyan (although different colours are more common in the US). These are cheap and easy to get hold of.

As an image-maker, all you need to do is overlay your two images, and colour one red and the other cyan.

One of the biggest advantages of anaglyph is that you can print your image with standard inks or display it on a normal TV or monitor. However, a major disadvantage is that if one eye is seeing an image in shades of red and the other sees only cyan, the original colours of your shot are severely compromised.

Filmmakers often work with a palette of muddy browns in order to overcome this issue. Careful colour correction can restore some of the colours, but it's not perfect and there's always a strange, confusing mismatch, especially when looking at strong reds or greens.

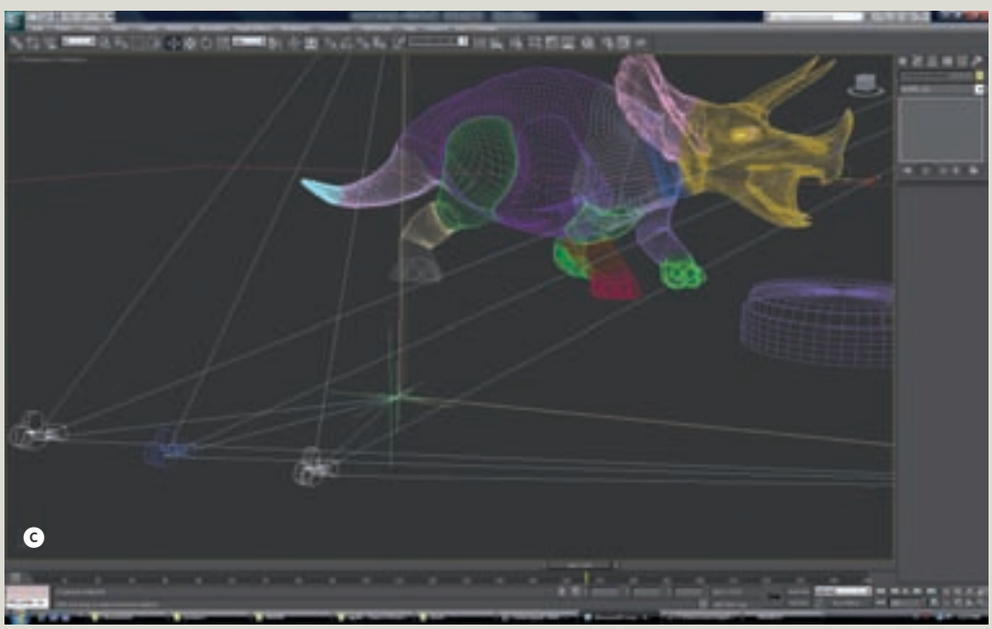
Films like *Avatar* overcome the colour problem by giving the viewer a pair of glasses in which light is polarised differently for each eye. This is great, but you effectively need to show your two images using two synced projectors. Not really practical for the home user right now, and specifically it won't work on a standard TV or monitor.

A third system uses 'active' glasses. Here, the image flicks between the left and right-eye images, and the glasses are electronically controlled to flick from left to right in time. You can use a standard monitor, but you need expensive glasses which few people have.

This leaves anaglyph, despite the aforementioned problems, as the only practical solution for mass media right now, so it's the method we'll be using in our tutorial. The advantage, of course, is that the production techniques don't change. If you develop your work for anaglyph, transposing it to a different delivery method later shouldn't be too difficult.

Next month, we're going to take a look at a new type of 3DTV which doesn't require the viewer to wear glasses – lenticular 3D.

> "This leaves anaglyph… as the only practical solution for mass media right now"



B Try to manipulate background objects and cameras to create the illusion of depth, as in this image of blood cells

C A screengrab of the triceratops model and setup during the wireframing process

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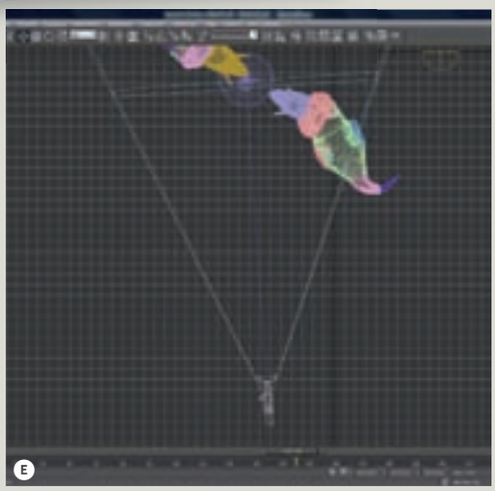
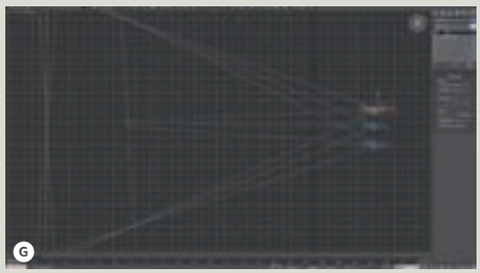
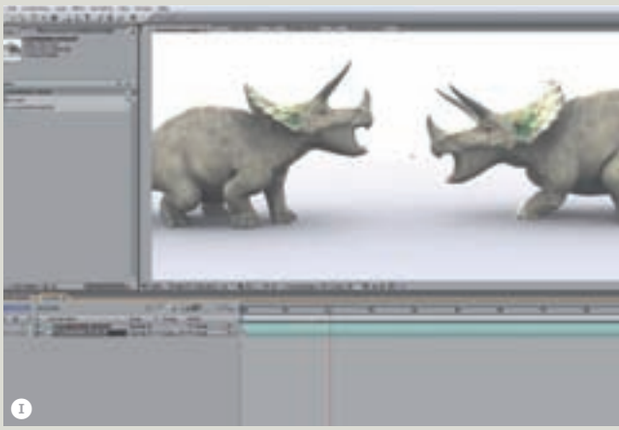


Useful scripts

If using Max, you'll find there are several complimentary stereo camera scripts available online which greatly simplify the job – either by creating and linking your stereo cameras automatically or by displaying anaglyphs as you work.

Likewise, there are also free After Effects scripts for working with stereoscopic images such as those at: **www.pinkau.com/download/aestereoscripts.zip.** In addition, After Effects itself has a 3D Glasses effect, which you can use to replace Steps 7 and 8, but we've taken a different approach to allow you to transfer the techniques to other packages or to still images.





D Build your 3D scene just as normal, but pay close attention to its depth

E Target cameras mean you always know where your 3D shot is focused

F Lay your viewports out so that you can compare the left and right camera views

G Skewing simply means you don't waste time rendering portions of the shot you'll have to crop out later

H Anything in front of the target will appear to come out of the screen

I Place both clips within the same composition

> "If you're using Max, you'll find there are several complimentary stereo camera scripts available online which greatly simplify the job"

01 Design your space

Build your 3D scene as normal. Lighting, modelling and animation should be the same as for any other scene. However, make sure the distance between the closest and most distant object isn't too great (if you have a lot of detail in the background, consider rendering it out and re-importing it as a background plate). Also, remember that any cheats you do in your 3D work (using placards instead of real objects, or distorting distances) will be more obvious in 3D D.

02 Place a camera

When setting up a camera, always use Target cameras and place the targets somewhere sensible. Your target will be the focus of your shot – where your two cameras converge, so it will be where the eye naturally rests. You can use whatever zoom and focus settings you like, and likewise with any camera animation. However, if you animate the zoom or pull focus, you'll have to replicate the effect when you create additional cameras for the left and right eye E.

03 Duplicate and link your cameras

Now create two copies of your camera – one either side of the main camera, and separate them by 2.5 inches (the distance between an average person's eyes). Link the cameras to the main (central) camera so when you move it, they move too. It helps to lay your viewports out so that you can see and compare the view from the left and right eyes. The views should be different, but only slightly F.

04 Skew the cameras

Give the cameras the same zoom and make sure they're targeted on the same point. If using Max, apply a Skew modifier to each and adjust it until the frame of each is identical (if your 3D package doesn't have a Skew tool, simply render extra-large images and you'll be able to crop them in the compositing stage) G.

05 Focus your 3D

The target of your cameras determines the convergence plane of your shot (the most comfortable point to view, where the objects in shot appear to be level with the screen). The distance between your cameras defines the stereoscopic depth – the further apart they are moved, the deeper your scene will look. Try to keep most of your action on or behind the convergence plane H.

06 Render

Render out the animation for each of the left and right cameras. Keep the files separate and import them into your compositor. We're using After Effects. Create a new composition with the dimensions of your final shot and drop your clips into it. If you're doing post-processing on your shots, do it before you start and make sure you apply consistent effects to both the left and right images I.

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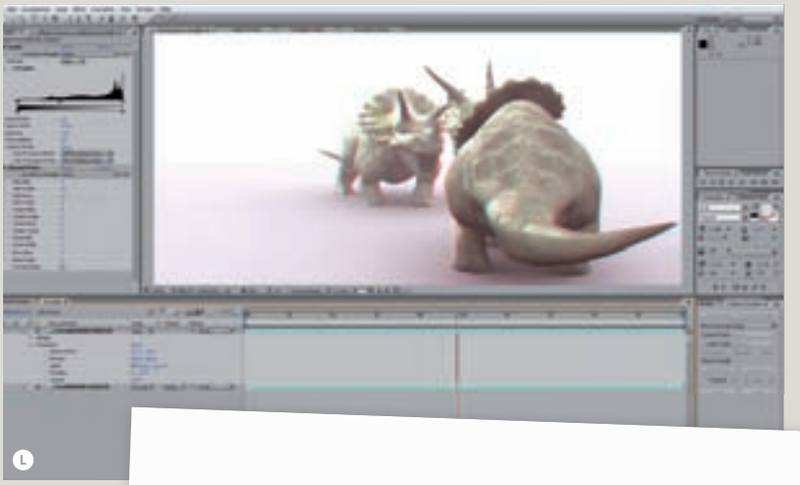

07 Overlay the images

Switch the Overlay mode of the top animation to Add. Next, align the two images by shifting their X positions so that objects on the convergence plane are placed exactly together, then zoom both clips so the left and right edges aren't cut off. If you've skewed your camera, this will be a very minor adjustment. By adjusting the X position of the shots, you're effectively shifting the convergence plane backwards or forwards J.

08 Colour lenses

Take the left image and add a Channel Mixer effect, setting the red-red, blue-blue and green-green controls to 0, and the red-green and red-blue settings to 70 and 30 respectively. Now add a Channel Mixer to the image on the right, and set its red-red control to 0 (to remove the red from the image) K.

09 Colour correct

This creates a basic anaglyph, but it's possible to improve on it. For a start, the cyan eye is usually getting a slightly brighter image than the red eye, so it helps to boost the gamma on the red eye. Put on your 3D glasses so you can see the effect, then add a Levels control to the left eye. Adjust the gamma control until you get an effect you like (usually a setting of about 1.2 to 1.5 works well). You can sometimes also improve on the results by colour correcting, but it can get tricky because you have to do it with your glasses on, and you have to place any correction that you make underneath the Channel Mixer effect, otherwise you'll risk distorting the red/cyan balance. If this happens, you'll start to see ghosting as images appear in the wrong eye L.

10 Output

Render out your finished artwork. When you do this, bear in mind that if you go for a low-resolution output (for YouTube, say) you may end up losing the subtleties of the 3D effect because tiny differences in the red and green channels won't be seen on a low-res image. It's better to go for a large, clean image if you can. Also, if you're archiving your work, it's worth keeping the two original shots you rendered. 3D technology is moving fast, and you may one day want to re-composite for the next wave of polarised 3D monitors M.

The language of 3D

3D production is still developing its own visual language, but there are a few aesthetic conventions that look set to stay. One is the use of 3D depth as a creative tool a little like depth of field. Creating a 'shallow' 3D shot makes the image feel more intimate, so it's worth keeping objects close to the convergence plane for close-ups and subtle shots. A deeper shot creates a more epic view, so landscapes and action tend to involve more stereoscopic perspective.

In addition, if you're creating animation, it's worth considering the work the eye has to do in re-focusing when you cut. Try to keep fast cuts to a minimum and make sure the main focus of the image is at the same depth from shot to shot.

Think of your screen (or page in printed work) as a window. The convergence plane (the most comfortable spot to look at) appears to be level with the window, and it's here that the most important elements of your shot should appear. By convention, most of the action is kept on or behind this point, so the viewer feels as if they're looking through the screen and into the 3D world you've created. Only occasionally allow objects to come out in front of the convergence plane because although this can be effective, if overused it destroys the illusion.

M

J Adjusting the clips' position and zoom compensates for the mismatch in the position of your cameras

K The red and cyan 'fringes' show the area where the images from the left and right eye diverge

L Colour correction through red/cyan glasses is a tricky skill to master and the results are usually less than perfect

M Test your finished image in windows of different sizes and look at it from different distances from the screen – you'll notice the effect changes

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Questions & answers

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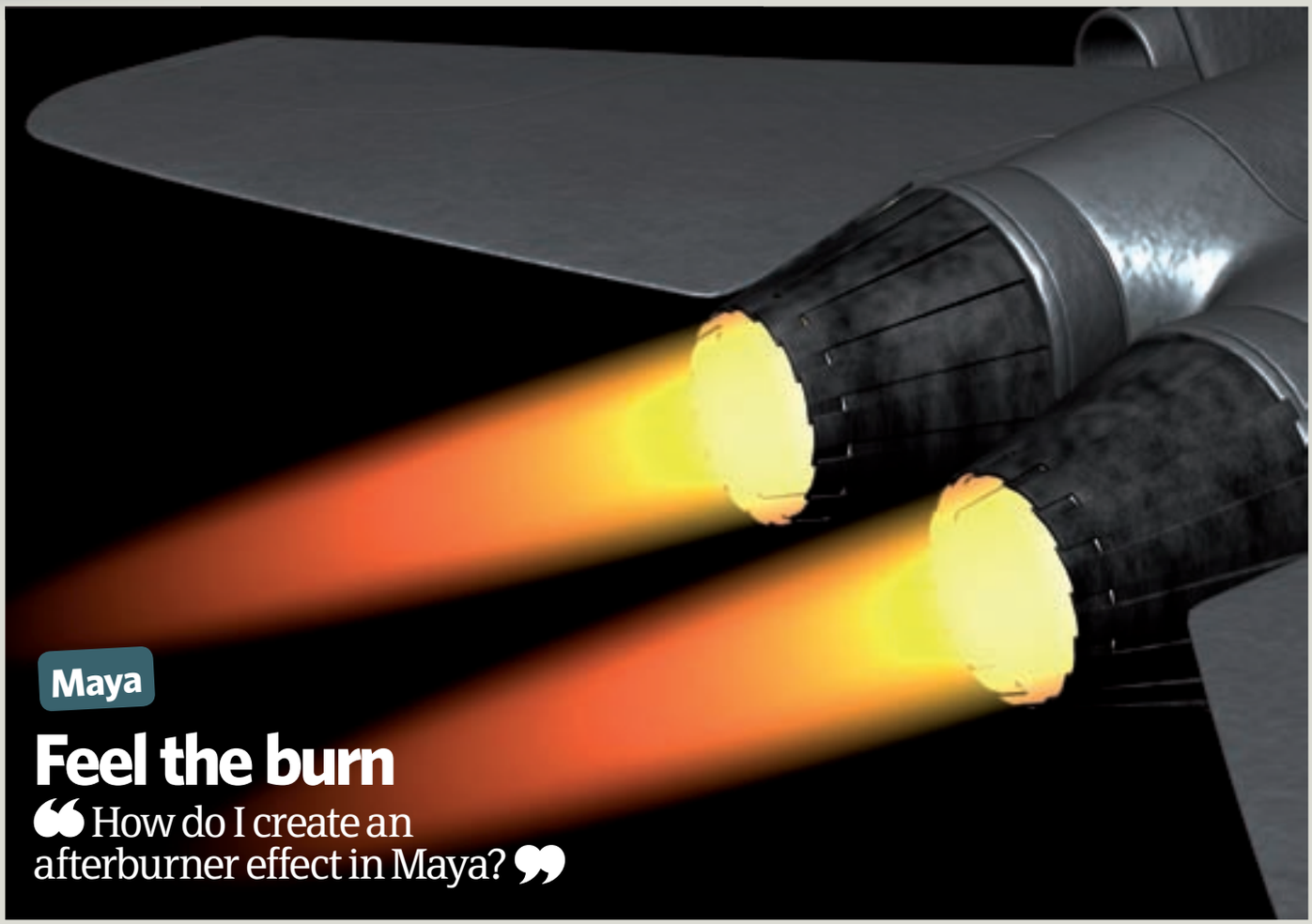
The Advisors

Maya
Lance Hitchings
www.hitchingsdesign.com

Lance is our Maya guru and this month he reveals how to create realistic afterburn flame effects to give your rocket-powered vehicles some *oomph*

3ds Max
Ryan Knope
www.ryanknope.com

Ryan is our architecture and 3ds Max expert. This issue, he shows us how to merge CG buildings into urban-setting photographs



Maya

Feel the burn

"How do I create an afterburner effect in Maya?"

There are numerous techniques for creating flames, but for this afterburner effect, it's all going to be done with shader networks, rather than relying on complicated particle effects, fluids or other types of dynamic solutions.

The key to this technique is a samplerInfo node, which is plugged into a ramp that feeds into the Transparency attribute of our material. You'll find that this technique creates a very soft edge in your render, and can be used in a plethora of other scenarios, from the shell of an atmosphere around a planet to a halo, aura or a beam of light. Indeed, it can be utilised anywhere you might need a soft edge. Have fun with it.

01 Building the geometry

The first step is to construct the geometry. For the afterburner effect, we'll be concerned with two types of object. Obviously, we'll need geometry for the flames shooting out of the exhaust of the jet (B), but we'll also need to manipulate the inside of the tailpipe (A) AB.

02 Shader networks

Next, we'll start the shader networks which will be applied to the geometry. The material for the inside of the tailpipe is easy. We'll use a Lambert material with the Diffuse attribute turned all the way off and the Ambient Color attribute turned all the way on (G). This forces the Lambert material to act much like a surface shader, however the Transparency attributes still act like a Lambert. A ramp with an orange gradient (C) gets plugged into the Color attribute. Now the inside of the tailpipe glows with the radiant energy and glow of the afterburner (E).

The material for the afterburner flames starts out just like the tailpipe material, but with a slightly different orange gradient (D). This is mapped so that the lighter end of the gradient is nearer the tailpipe (F) CDEFG.

03 Creating soft edges

Now we'll build a ramp that controls the transparency to create a soft edge around the flames. Make sure that the Type is V Ramp (I). This ramp gets plugged into the

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CINEMA 4D
Daniel Lovas
http://lovas.cgsociety.org/gallery

Daniel is our resident CINEMA 4D specialist. This time around he gets destructive, revealing how to animate a glass object as it smashes into smithereens

Vue
Dominic Davison
www.3dartistonline.com/user/dom1

Dom loves to create authentic landscapes in Vue. In this issue he guides us through the process of creating a coastal cave

Poser
Paul Francis
www.3dartistonline.com/user/stormdraingfx

Paul is a former modeller for programmes such as *Red Dwarf*, as well as a talented photographer. This month he reflects on creating mirrored surfaces in Poser

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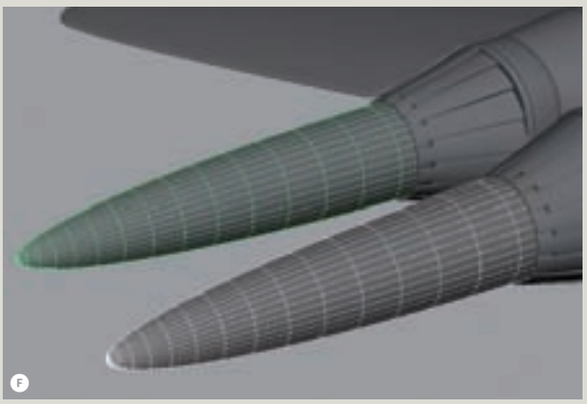

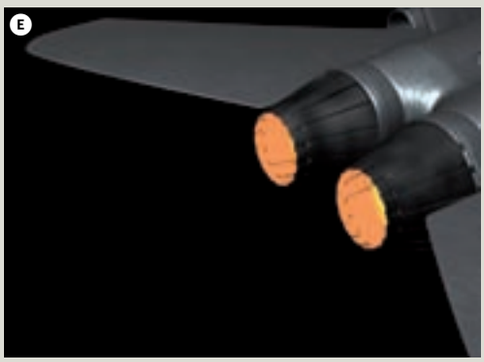

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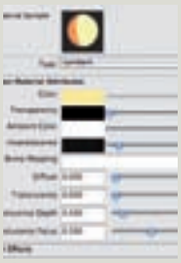
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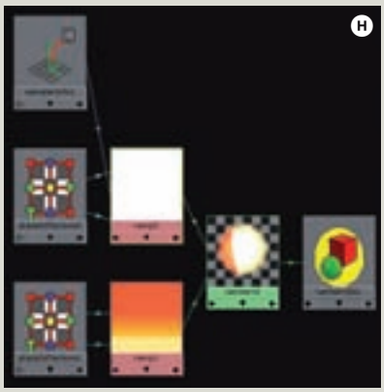

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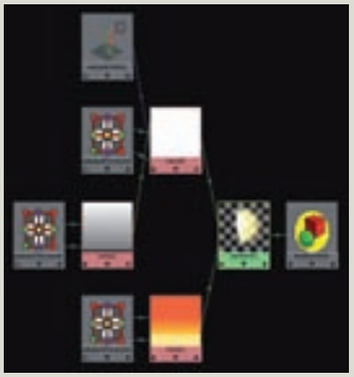
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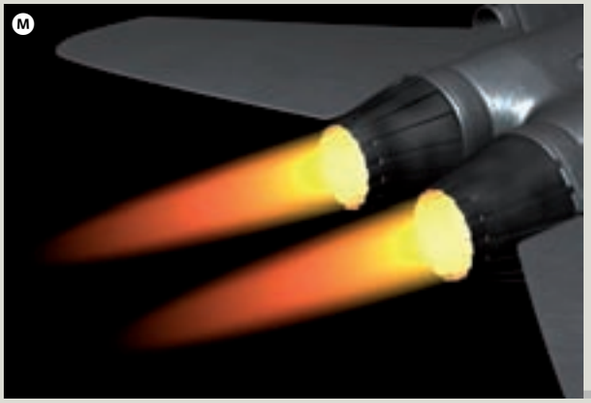

Transparency attribute of the flame material (H). We then create a samplerInfo node and plug the facingRatio into the vCoord of the ramp, using the Connection Editor. The facingRatio of the samplerInfo node uses the black part of the ramp to create opacity where the flame's surface is facing the camera, (the centre) and uses the white part of the ramp to create transparency where the surface is facing 90 degrees away from the camera, which is along the edges (J) HIJ.

04 Fade the flames to black

Finally, we want the flames to become more transparent the further they travel from the tailpipe to heighten the degree of realism in this effect.

We'll use another V Ramp to accomplish this (K). This ramp gets plugged into the upper (or black) colour of our first ramp (L). Since the upper colour of the first V Ramp is controlling the opaque centre of our flames, we've now made that colour a gradient, so that it's only opaque at the end closest to the tailpipe and fades to transparent at the other end (M). You'll notice that this ramp also seems to amplify the effects of the first ramp. You'll need to adjust the values of your ramps to get the precise finish you're looking for KLM.

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3DArtist Questions & answers

Welcome to the Q&A section where we answer all of your technical quandaries on the most popular 3D programs including Maya, 3ds Max, CINEMA 4D, Poser and Vue

Poser

Mirror, mirror

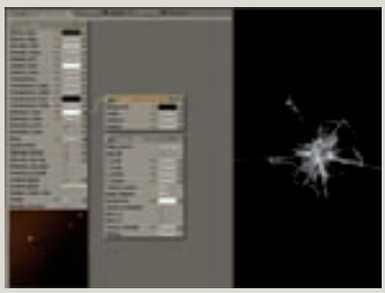
“How do I create a mirrored surface to place behind a character?”

This is a good question, as the standard procedural and other textures that Poser installs don't include this most basic of materials. Looking back 20 years ago, everyone was rendering mirrored surfaces with Commodore Amigas, and very clever we thought we were too. The good news is that it's very simple to make the material yourself. The bad news is that it won't work unless you have version 5 or higher. As it's such an easy exercise, it's a good introduction to creating your own textures and materials, if this is something you haven't tried before with Poser.

One issue which might seem obvious after you've tried this out – but you might not have thought about beforehand – is that the elements of the scene you want to be reflected should be as complete an environment as possible, ie there shouldn't be any of the standard Poser background showing through. The reason for this is that in a standard render, the background is rendered as transparent. This is great for post-work or for compositing your Poser scene over another render. However, when rendering a reflection, any portion of the background which is reflected renders as a solid colour, which is practically useless for compositing purposes.

The Material Room

We are only going to be tweaking a few settings to get the material we are after, so it's an easy introduction. For the main picture, I decided to use the standard Poser Square prop from the Primitives Prop library as a mirror. Once this was loaded and selected, I then entered the Material Room and clicked the Advanced tab. There are a whole host of options here, but you only need to worry about a few. First, make the Diffuse_Color black and set the Specular_Value to 2. Next, uncheck the Reflection_Kd_Mult and Reflection_Lite_Mult options.



A screenshot of the Node settings and the Bump map used on the mirror surface in the main image

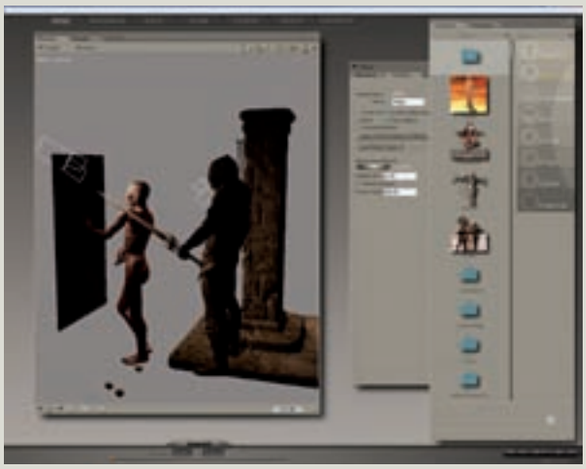
Node time

Now we get technical and can impress our friends. Right-click the little socket next to the Reflection_Color parameter and choose New Node>Lighting>Raytrace>Reflect. This needs to plugged into the socket by left-clicking and dragging a connection from the plug to the socket; a white line will change colour once it's plugged in. Thankfully, it's a lot easier to do than to describe! One final setting here is to check Normals_Forward. You also need to make sure that Raytracing is checked in the Render Settings dialog. This should give you a perfectly reflective mirrored square.

Rendering a scene

For the main picture, I made sure that there were no gaps in the reflected scene by placing a wall prop behind the camera to block out the background, and a second figure and some props, which would only be visible as reflections.

One thing I noticed was that the mirror was too perfect – the scene looked like two (identical) people imitating each other, so I decided to add some cracks to the mirror to make the surface visible. This was done by adding a monochrome image of a cracked window as a Bump map in the Material Room.



The setup for the main image – as you can see, most of the elements in this scene will exist only as reflections

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Compositing buildings 3ds Max

“Can you give some pointers on compositing a CGI building into a real photograph?”

Adding a CGI building into a real photograph can be tricky on a number of levels.

First, you have to match the camera angle from the ‘plate’, then the lighting that you are presented in the photo. On top of this, often there will be a building obstructing your view and interfering with your new building’s reflections and other attributes. Also, you need to convey believable reflections from the plate in all directions.

Painting in colour/highlights to match your rendered building is definitely required in most scenarios. Manually creating depth of field in Photoshop can also help for perfecting this effect, as this brings more focus to the desired area as well as leaving less work for you in the long run. This said, I am not personally a fan of using depth of field with this type of rendering.

While working on projects such as this, I tend to use many layers in Photoshop to create the blend region from photo to rendered image. During the process, I try to keep in mind that I am attempting to make the two elements merge together seamlessly, therefore editing the plate and render element extensively. In these images, as I made the plate look more artistic. This helps bring the rendered element into the scene on a more convincing level.

Matching the camera

Camera matching can be done manually. Place your plate as the background image, then create one building (just a box) and size it to fit one of the closer buildings in the plate. Now move your Perspective view to match the angle of the plate shot before creating a camera from this viewpoint.

You may have to edit the size of the box to get it to match properly. Create a few more boxes and match to the buildings in the area. This ensures that you have a good angle and will also know the location where the new building should go. Most applications contain camera matching tools, but for information on specific tools in your 3D software, check Google.

Matching the lighting

Knowing the time, date and location of the photograph/plate can help greatly. You should also try to figure out the orientation of the building (north, south, east or west, etc). Often this information is not available and you have to match it as closely as possible.

I usually use mr Sun and Sky along with the Photographic Exposure control. You can match the lighting manually by making a note of the sun’s direction and colour, then changing the sun’s location and height.

The shadows that reach other buildings can either be added during postproduction or by using the Matte Shadow material in mental ray.

Blending photo to 3D

This step mainly consists of postproduction work. Once the rendering is placed, objects need to be masked out and placed in front of the render layer. Trees, streetlights, sidewalks, people and shrubbery can all help blend the area where building meets ground.

Mask out and place any structures/objects that are in front of the CG building. Make sure to add in any shadows that would be cast by the frontal buildings.

I use the Dodge tool extensively to give the backplate a more artistic feel. Adding a bloom to the image’s highlights can also help improve overall cohesiveness, while adding colour overlays can better bring the various lighting regions of the render together.

Adding haze, foreground elements, trees and highlights. I used the Dodge tool to make the backplate look more arty

Creating matching camera angles, using the scale to help

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Smashing times

CINEMA 4D

“How do I realistically break a bottle or glass object?”

While it might be possible to create a static or even an animated effect of an object shattering and breaking into many pieces after hitting a hard surface or another object in the basic bundle and older versions of CINEMA 4D, the process would be too complex (and lengthy) to be explained thoroughly enough in a short tutorial.

The easiest way to create an animation of a broken or shattered bottle or other glass object in CINEMA 4D quickly – and just as importantly, elegantly – is by using the latest version of the program (11.5) in conjunction with the latest version of the MoGraph module.

In this particular example, we're going to create an animation of a beer bottle falling onto a hard object, shattering into smithereens, with the pieces covering the surface of the colliding object and some of them falling off to be captured by a ground plane beneath.

In the first step of this tutorial, we will create the bottle itself using some basic, familiar CINEMA 4D techniques. A spline shape will be rotated by Lathe NURBS and the resulting form converted to a polygonal mesh. Next, we will prepare the object for its impending deconstruction by adding a series of invisible cuts across several parts of the mesh.

The preparation of the object continues in the third step where we define the shapes of the final shards and it ends in Step 4 by defining the glass thickness using the Cloth NURBS container (part of the optional MOCCA module). In Step 5, we add the other elements playing a part in this simulation, namely the colliding object and the Floor object located underneath. A deformed cube is used as the colliding object and I suggest you use it regardless of the actual shape you intend to use. Make it invisible and deform it to fit the original object as closely as possible and the simulation will run much quicker.

Finally, we set up the actual dynamic MoGraph simulation by adding the key actor – the MoGraph Fracture Object – and adding Rigid Body tags to all participating objects. Once everything is set up, we can make the bottle the child of the Fracture Object (this is where everything is going to slow down to a crawl even on a reasonably fast workstation!). With all these steps ticked off, you can hit the Play button and watch the completed simulation.

Simplifying shards

To make your life easier, it's not a bad idea to find images of broken glass on the internet (or study your own photographs if you have any to hand) prior to starting this tutorial. This research will provide you with a more definitive idea of which parts of the bottle are likely to break first on contact with a hard surface and which are more likely to remain in a single piece. You'll be able to use this information when cutting out the shards. You can also use the Edge mode and deselect some smaller and regular edges before using Disconnect in order to get bigger and more irregular-shaped shards and, as a result, an even more convincing simulation.

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01 Modelling the object

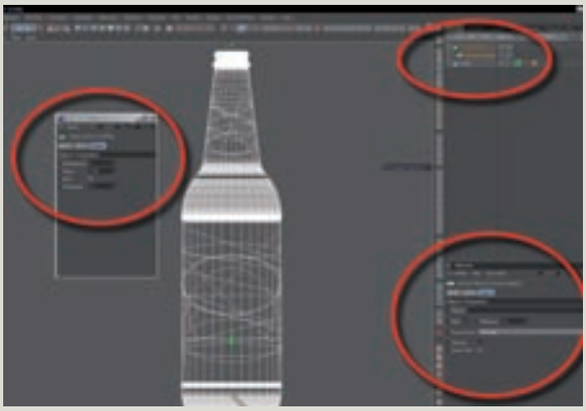
In this tutorial we'll be breaking bottles, so first we need to model a bottle to break! Use a side-on photograph of a bottle as the background in the Front view to draw the spline that follows the outer shape of the bottle. Don't draw the inside part of the spline, as we only need the outer surface now; we'll add the thickness of the glass later. Add a Lathe NURBS container and drag the spline onto its icon in the Object Manager.

02 Cutting the object

Add a suitable glass (or any other) material. Next, convert the Lathe NURBS object to polygons (Make Editable). Activate the Knife tool, set its Mode to Line (single) and take care that only the Create N-gons option is checked. Go to the Front view and make cuts at various angles across the bottle. Now go to the Left view and repeat the operation. Don't make too many cuts, though, as it might slow down the work later.

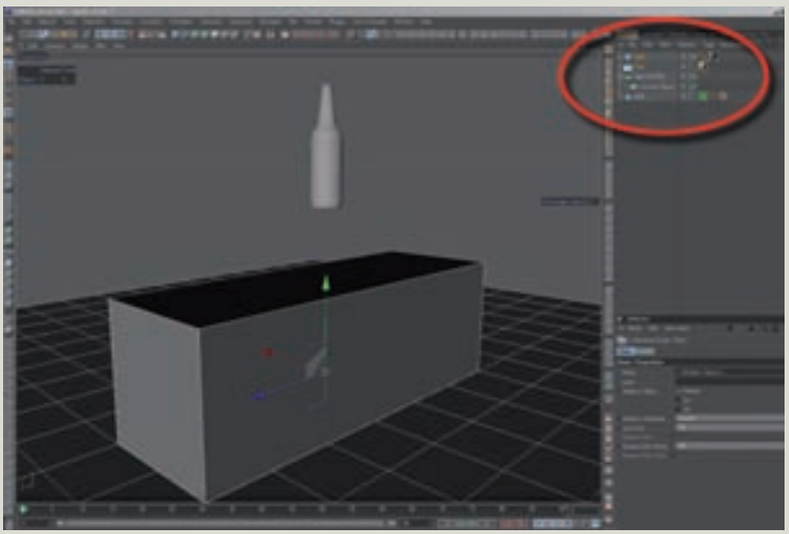
03 Preparing the shards

Activate the Polygon mode and use the Rectangular Selection tool with the Only Select Visible Elements option checked to select just the polygons that you cut in the previous step. Now go to Function> Disconnect in the main menu and uncheck the Preserve Groups option. This step is important, as it's here that you'll decide which parts of the bottle are actually going to be broken during the animation.



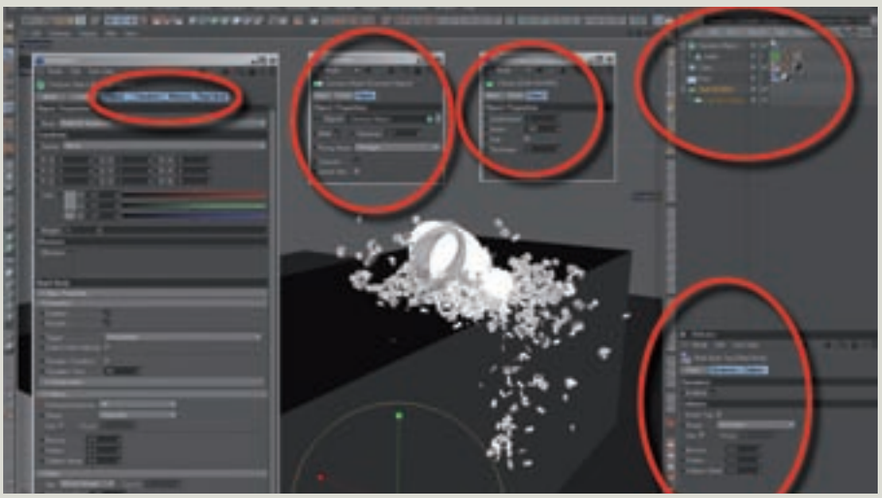
04 Adding glass thickness

Add a Connect Object to the scene. In its settings, check the Weld and the Texture options and leave Tolerance at 0.1, then set Phong Mode at Average. Now add a Cloth NURBS container to the scene; in its settings menu, leave Subdivisions at 1, set Factor to 100 and Thickness to however thick you would like the glass to be. Uncheck the Limit option, then make the Connect Object a child of the Cloth NURBS object.



05 Adding other participants

It's time to add other participating objects to the scene. We need an object for the bottle to collide with and a main large surface to collect any shards that might rebound off the colliding object. Add a Floor object to the scene, followed by a Cube object. Resize the cube to appropriate dimensions and position it so that it sits on the surface of the Floor object.



06 Preparing the simulation

Add a Fracture Object to the scene. Change its Mode to Explode Segments. Right-click on it and, from the pop-up menu, select MoGraph Tags>Rigid Body. In the Tag settings, under the Collision tab set Individual Elements to Off and keyframe it at zero. Go to the frame where the bottle hits the surface, change the value to All and keyframe it. Select the Cube and Floor objects and give them a Rigid Body tag. Drag the Fracture Object onto the Object field of the Connect Object. Finally, rotate the bottle a little and make it a child of the Fracture Object. Now you can run the simulation and make any final tweaks.

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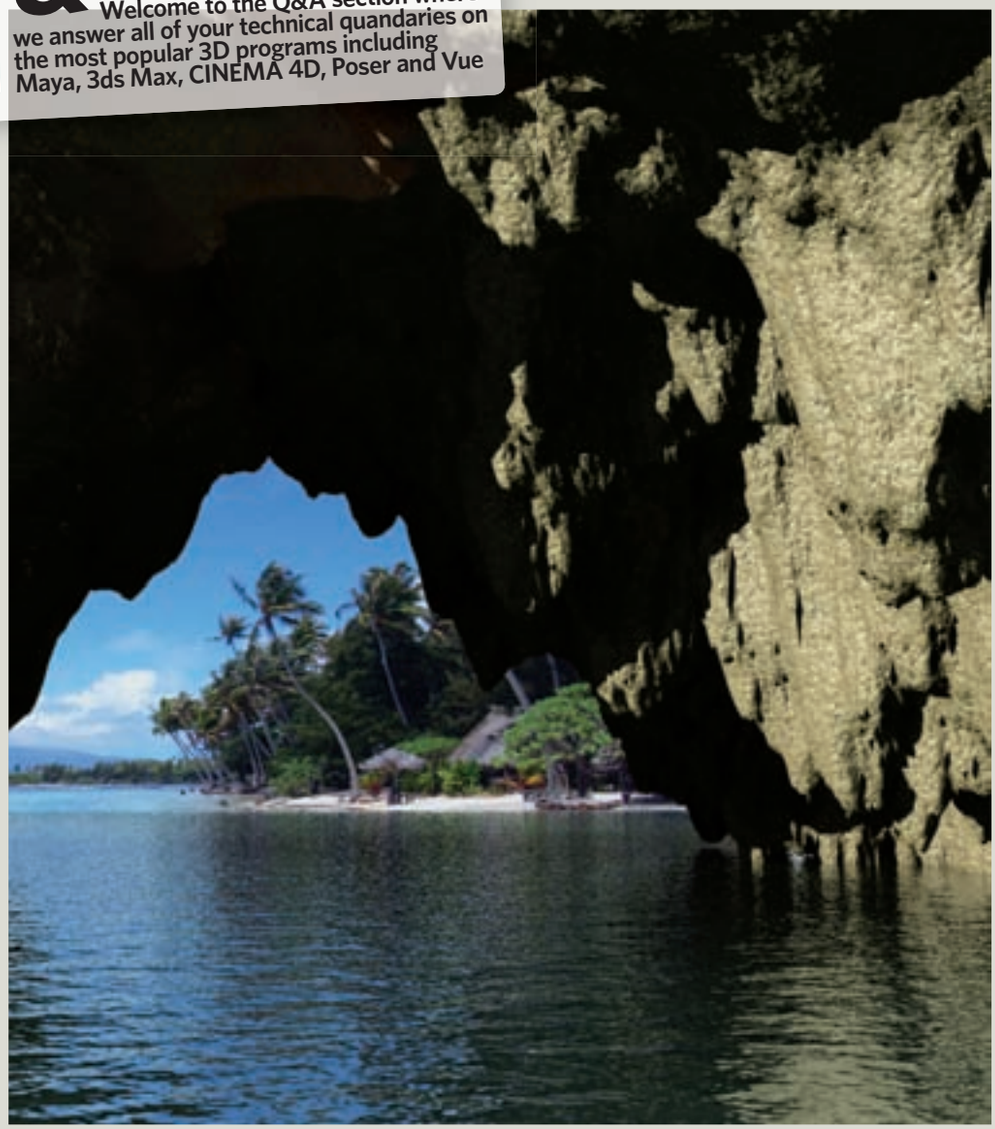
3DArtist Questions & answers

Welcome to the Q&A section where we answer all of your technical quandaries on the most popular 3D programs including Maya, 3ds Max, CINEMA 4D, Poser and Vue



Exploring caves

Vue

How do I create a cave in Vue?

Creating a cave in Vue can be achieved in a number of ways. For this tutorial I have gone for the quickest and most flexible route. Initially the cave was going to be completely underground, which would entail it being lit like an interior scene. This would have required additional lighting, and would have increased render time. Vue really excels as an outdoor render application, so this tutorial places the viewer within the cave, looking outside through the entrance. This way we get the best of both interior and exterior worlds and actually end up with a more dramatic finish.

We chose Global Radiosity as the Lighting model in the Atmosphere Editor, as it allows the light to bounce off the areas of rock that aren't directly lit by the sun. By marginally increasing the Light balance, the scene gets enough of the sunlight to appear in the scene, without losing the ambient light in the non-sunlit areas.

Because the cave is made from terrains, it means we can quickly change its shape, size and materials. The Complex Rock material adds a realistic, wet-looking surface. The Paint tool within the Terrain Editor came in handy, not only for creating the peaks or stalactites, but also for adding wear and erosion to the surface of the rock material.

When positioning the terrains that make up the cave, it was a case of resizing and rotating each one around the main camera. Because the terrain isn't a flat surface – and by flipping it 180 degrees – when we place it over the top of the main camera, it immediately looks like the viewer is inside a cave.

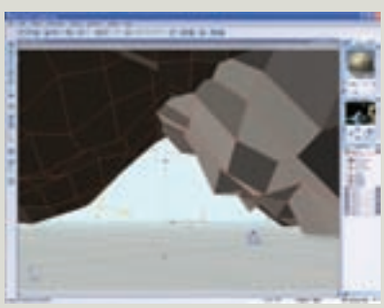
Adding water was important because it allows the surface to reflect both light inside the cave and that also coming from the open entrance. Ultimately, it is an aesthetic choice, but it does effectively help draw the viewer's eye through the composition.

01 Atmosphere and water

First open a new atmosphere. For this tutorial, choose Global Radiosity and increase the Light balance to 68%. This will allow a certain amount of sunlight through, but also show enough indirect lighting. Now create a water plane and select the default water material. Change the Bump settings to 0.100 and keep the Scale at 1.00.

02 Creating the cave

Choose a Standard or Procedural terrain, and change to your chosen material – in this case, Complex Rock. Double-click the terrain and then increase the resolution if desired. Select Mountain from the terrain types on the left-hand side of the Terrain Editor. To create stalactites, select Paint and, under Brush settings, set Size to around 60%. Now click over the terrain where you want the pointed stalactites to appear and hit OK.



03 Positioning the cave

Finally rotate the terrain 180 degrees. Next increase the size of the terrain and position over the main camera. You should find that there are gaps in the peaks (stalactites) of the terrain. This will allow light through and should give the impression of being inside a cave. For this tutorial, a duplicate was made of the first terrain and placed on either side of the camera to create a gap for the entrance.

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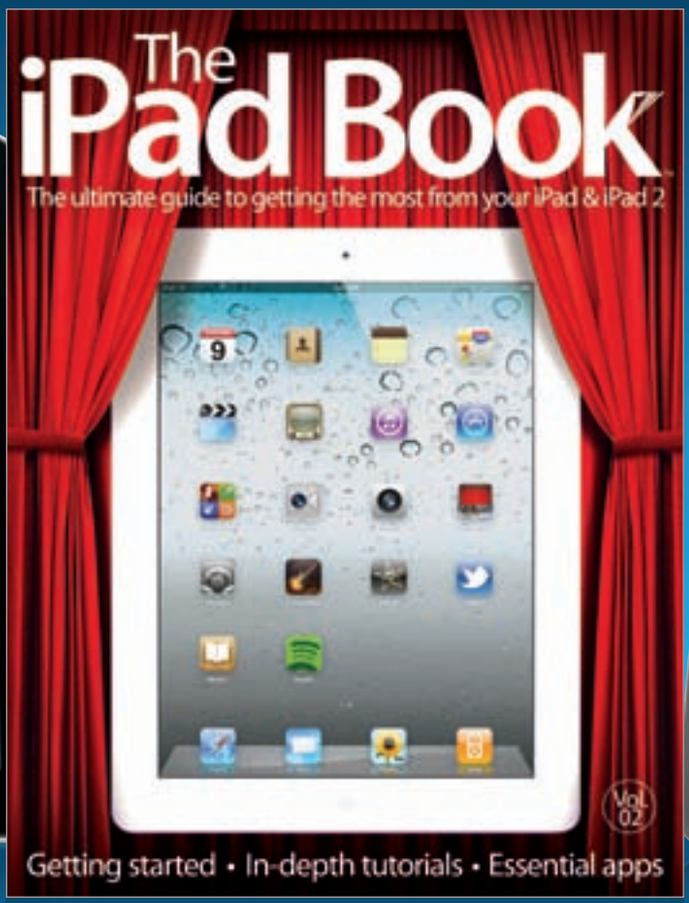
Learn in style

iPad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3DArtist

Back to basics

Daunted by the enigma that is UV mapping? Let Rob Redman lead you through the process

A

UVs and unwrapping

CINEMA 4D

"3D artist Rob Redman shows you the fundamentals of UV mapping and unwrapping and looks to dismiss the mystery surrounding this powerful tool"

Many people find the subject of UV mapping daunting, but don't worry. With a little understanding and a few tips provided in this guide, it will all become clear. Imagine your model has a zip down a seam. A UV map is like unzipping it and ironing it out flat, so you can easily paint on it before zipping it back up. This can be an important tool, enabling you to paint specific details. There are a lot of methods you can use but we'll look at just a couple to get you started.

Putting it into practice

In issue 16, we looked at using texture tags and projection methods to apply various materials to our models. Those methods can be extremely useful but for some models they just aren't precise enough. It is for these occasions that UV maps are the answer.

A large number of artists find the whole idea of UV maps and unwrapping intimidating. Admittedly, there's some terminology that isn't used for anything else that makes it seem an arcane and alien process, but in reality, it's actually very straightforward and can improve your work by no bounds.

All a UV map really does is pin points of a texture file to points on a model's mesh. This can be done automatically and, for some models, this may suffice. However, for most jobs, it is best to use a few simple tools to dictate how the points of the map correspond to the model. In our example we will use the head of a character (adapted from a model by the talented Glen Southern). Character models nearly always need UV mapping as, more often than not, the texture will need to be precise and detailed. In fact, getting make-up, scars, tattoos, etc, to their correct places is almost impossible any other way.

In the proceeding step-by-step section we will take our head model, select some of the geometry to assist us, unwrap the UVs, apply correction and finally paint in our textures.

A These textures would have been very difficult, if not impossible, to create without a UV map

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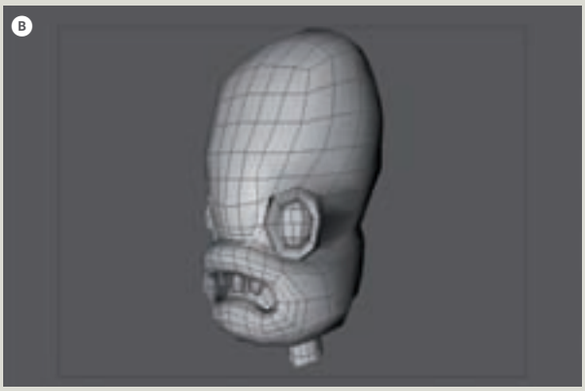

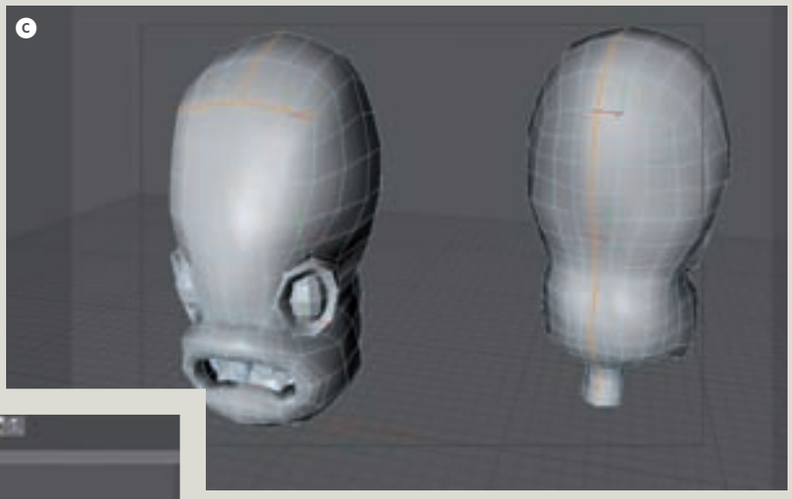

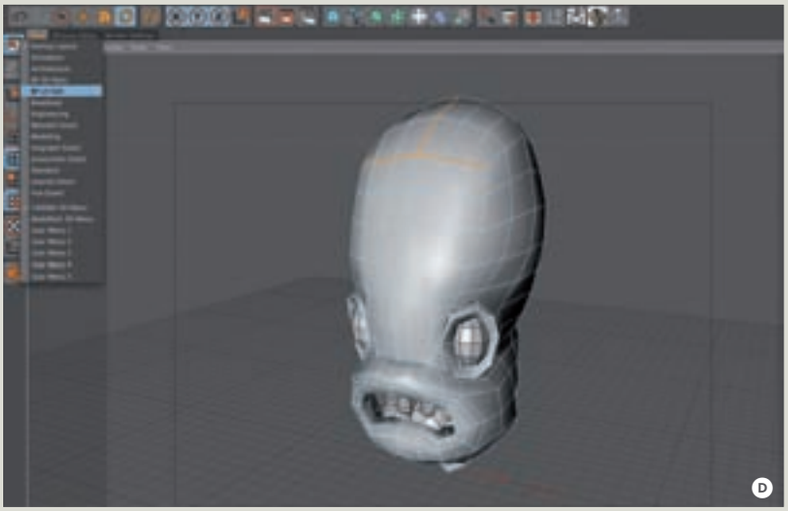

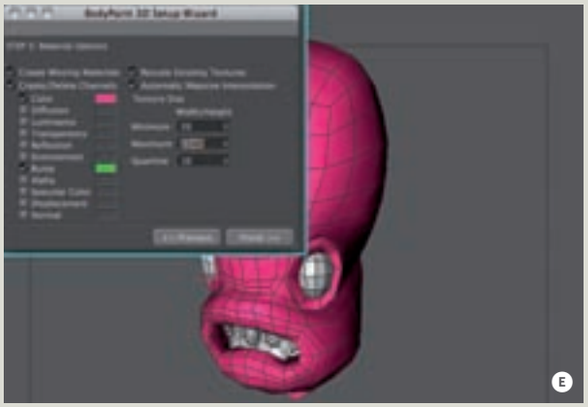

We could just create an automatic map, which would allow us to paint in 3D but, by using selections, we can determine a seam. If the model is unwrapped this way it is like a rug made out of skin. We can decide to add the seams to areas that could be hidden or are less likely to warp when unwrapped. This type of mapping is often called pelt mapping or LSCM mapping. We are using CINEMA 4D, which uses LSCM.

Another feature of UV maps is that we can dictate the size of the texture file. There is no need to have a texture map for a tooth which is as large as the head, so we can save on resources by making it suitably smaller. It is even possible to have various parts of a model unwrapped onto one UV map, resulting in one texture file. This makes asset management easier, as well as speeding up workflow, as only one file needs to be open at a time. Another benefit is that you can see everything at a glance, making colour picking straightforward and simplifying the continuity of styles and so on.

Using BodyPaint 3D in CINEMA 4D, we can use layers to create our textures. Once we've created our map, it's a simple case of clicking the New Layer button and painting away. This works in a very similar way to Photoshop and is intuitive to use. We can paint, hide, show or edit layers giving us a great opportunity to experiment without the need to go back and repaint areas we may not like.

Our UV-mapped texture can also be sent to Photoshop, so if you are more comfortable with the tools in Photoshop, or a compatible image editor, edit to your liking there, save and then hop back into CINEMA 4D. All you need to do is open the material, click the image's filename in the Attributes Manager and click Reload. There are ways of doing this directly from the BodyPaint module, but we'll keep things simple for now.

Most packages allow you to use more than one material at a time, either by stacked, mixed or layered textures. CINEMA 4D allows all of these and more. By loading the painted UV texture into an image slot we have our main colour but we may not need to hand paint a Bump or Reflection map. This lets us easily utilise any other texturing method. We could use Subsurface Scattering in the Luminance channel to add light passing through thinner areas, or a Procedural Noise shader. Alternatively a second material could be applied over the UV-mapped material, which offers even more versatility.

For precision and detail work, however, you can't beat a nicely unwrapped UV map. After following the step-by-step section, which follows over the page, you will have all the tools you could possibly need to start creating usable maps as well as the know-how to paint ultra-detailed textures for your models.

> "A feature of UV maps is that we can dictate the size of the texture file"

Interface layouts

As well as the presets available, it can be a huge time-saver to build your own custom layouts. Choose tools and windows you use often for a specific task and go to Window>Layout> Save Layout As. Give it a name (preferably based on the task) and it will always be available under the Layout icon. I have a few I use regularly, including a very useful one for spreading over my dual monitors but leaving room for reference photos/ browser, etc. I have others for animating and motion graphics.

B The initial scene opened, ready for unwrapping

C Here, the object has been duplicated so you can see the edge selection

D You can choose different interface layouts from the icon near the top left

E Our map is created but it isn't easy to paint on at this stage

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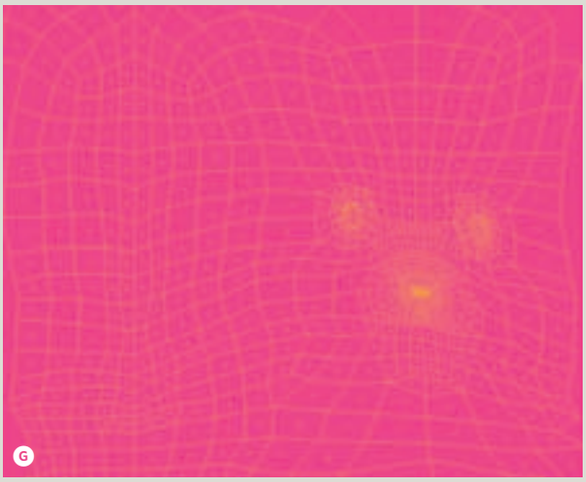
3DArtist Back to basics

F



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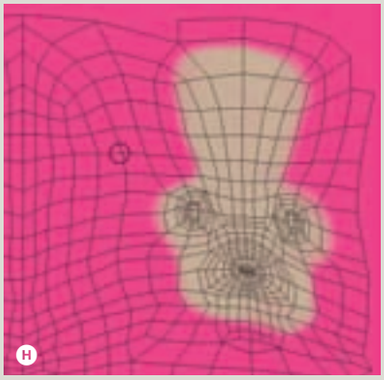

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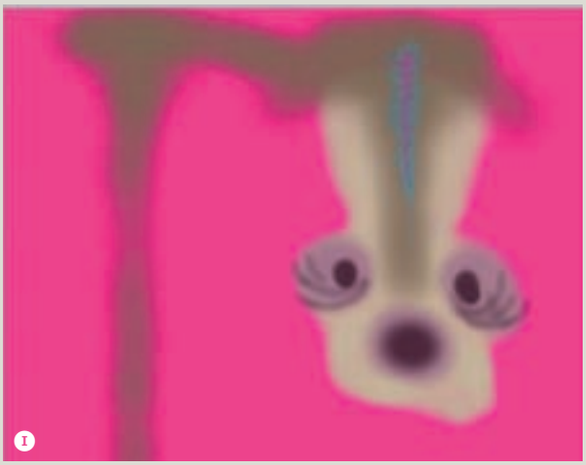

I

UV maps in ten easy steps

01 Set up the scene

First let's open the scene, named 'Headbase.c4d' and have a look over it. It's made of four parts, kept in a Null, under a HyperNURBS for easy smoothing. We'll concentrate on the main head but the same methodology can be applied to the other parts as well. We'll save as we go, but use Save Incremental so we can revert to a previous version should we need to. This is a good habit to get into B.

02 Get edgy

Ensure the HyperNURBS is turned off so we can see what we're working with more clearly. Now, in Edge mode, we need to select some edges, which will become the seams for our unwrapping. A good place to start is across the forehead and then down the back of the head to the base of the neck. Check the image for the selection I made. These edges are suitable as they will help us make a map which is fairly easy to paint on, either with BodyPaint or in Photoshop C.

03 Save as you go

With your edges selected, hit V and choose Selection, then Set Selection. This will bring up some options in the Attribute Manager. In the Name field, call it 'Seam edges' or similar. (This may not be needed for this example but it's always worth naming everything as you go. In a more complex scene, it will make your life a whole lot easier.) Now is a good time to make our first incremental save as well, so do that and then change to the BodyPaint UV Edit menuset D.

F Our map is getting there now and is all in one piece

G Now we have a nice tidy map, we can start to paint

H Painting begins and the fun starts. Here's the map in the Texture view

I The texture opened in Photoshop for further editing

04 Begin to unwrap

To start unwrapping, we can use the wizard, so click the button with the brush and three stars. This opens a dialog box. Uncheck all except the head model and click Next. We'll leave the default settings here, so click Next again and choose your channels. I've chosen to check Color and Bump and picked a base colour for the head. Here we can set our texture size. I chose Minimum 20, Maximum 2,048 – twice the default. Click Finish and you'll see your map, but all fragmented E.

05 Merge the map

Save again and select Yes when asked if you want to save the texture. Now we need to edit the map, so choose the UV Point tool to activate the options. In the UV Mapping tab (bottom left) you will see a Cut Selected Edges field. Check the Use tag and drag the Edge Selection tag we made earlier into the field and apply. Move to the Projection tab and choose Cylindrical, then hop back to the Relax UV tag and apply. Now our map is all in one piece and the face has no cuts so there are no seams to paint over F.

06 Prepare for painting

At this point, we can change layouts to the 3D Painting option. To swap between Texture and Model views, use the tabs in the main viewport. A little tidying can be done here (in Texture view), as there are a few points which need moving. You could spend hours doing this, but get somewhere close to the screenshot and then move on. Use the UV Point and Move tools to make these adjustments. We can also choose Select All and scale everything up to make full use of our texture and save again G.

07 Painting time

Let's save our scene and textures before we paint. In the main 3D view we can

Grids and checkers

A useful tool for creating stretch-free maps is the grid and checker options. If you apply a grid to your UV-mapped texture, you will be able to see any stretched or warped areas. This makes it a lot easier to go into UV Point mode and move points around to ensure as clean a map as possible. This adds an extra step to your workflow but, in the long run, it can save a lot of time. You can create your own or search for UV grids online, as there are plenty available for free.

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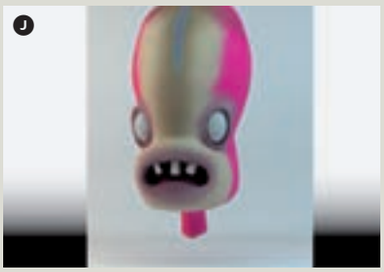
select our Brush tool, choose colours, sizes and pressures and start painting. We can refine the texture in the Texture view. Personally, I like to block out my main areas in 3D then hop back and forth between tabs to neaten things up. Both views have their benefits, so choose the method that suits your style of painting, but whichever you use, make sure to save as you go along H.

08 Add details

You may have noticed the Layers tab. This works in a similar way to Photoshop and can be very useful if you like to work this way, or to add details and retain the ability to delete them without repainting what is underneath. It comes in particularly handy for adding tattoos or decals. The textures you create can also be sent to Photoshop for further editing – something I do a lot, as I'm a big fan of several of the tools in Photoshop. Don't forget you can save out a different version of your texture, allowing you to swap between versions if you want to experiment I.



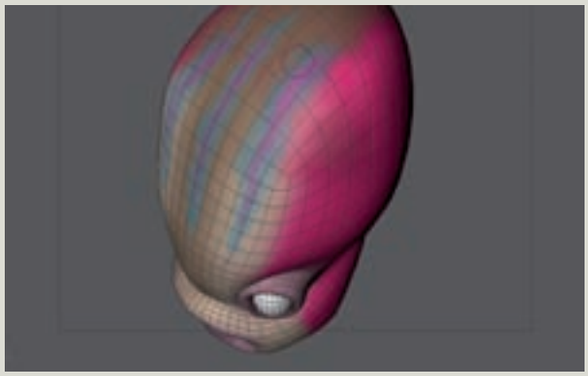
J

09 Test render

At this stage, it's worth doing a test render of reasonable quality to ensure we don't have any problems. I found a few polygons where the texture was a bit warped. If you have these, go back to the UV Edit window and use the Move and UV Point tools to fix it. You may find this needs to be done a few times during the course of a project. Over time, you will learn how to set up your maps faster and cleaner. It's just a matter of practice J.

10 Final projection

There are many more tools for working with UV-mapped textures, but possibly the most useful is Projection Painting. This lets us set our viewport and then use our brush to easily paint over seams or problem areas. If you have a seam, move the camera so it's easy to see, then choose the Projection tool (a chequered sphere with a brush) from the top menu. You'll see a yellow border around the viewport and can now paint over the seam without any trouble at all. Now all you have to do is finish painting your model, pop it in a scene and render in your preferred way. In future issues, we will look at more advanced UV tools but this introduction should get you started in no time K.



K

J Our texture opened in Photoshop for refinement

K Final adjustments made to the model with the Projection tool before rendering

eMag™

Carrara's new IES lights let users create highly realistic illumination effects as they emulate light patterns of various real-world bulbs

Carrara 8 Pro $549.95

With Carrara 8 Pro, DAZ 3D has set the bar high with a 64-bit quality, cost effective and well-versed 3D solution to ultra-realistic modelling

Even from jaded 3D professionals, the usual response to seeing Carrara in action is, "Wow, I didn't know it could do that." This trend continues with the new additions to Carrara 8. For both professional and enthusiast, Carrara is an extremely full-featured CG software that also offers another neat little trick – it can integrate directly with the wealth of pre-rigged Poser content allowing for instantaneous animation, modification and customisation.

The most significant improvement in Carrara is not a glamorous one but a tribute to pure speed and memory bandwidth. Carrara 8 is now fully 64-bit compliant for both Mac and PC. Coupling this with full multi-threading produces renders in significantly improved times for users that have the benefit of modern, multi-processor equipment. While improved speed is welcome by anyone, this 64-bit ability is especially appreciated by users working with heavy polygon models, models with hair or ultra high-res textures – all of which are common to human and animal figures and a speciality of Carrara's abilities.

For CG artists dealing with lifelike physics for stills or animation, Carrara has now integrated the respected Bullet Physics Library. Earlier implementations of physics in Carrara were only marginally useful due to long calculation times and somewhat unpredictable results. Now, running collision simulations for rigid body and the new soft body calculations occurs extremely quickly with very usable results. Important to note is that Carrara does not perform specific cloth simulations at this time. While it's possible to create waving flags or mild cloth type simulations with the soft body physics, a missing link is true cloth behaviour that is needed for believable clothing and character interaction. Since Carrara is treading so closely to this area given its character animation capability, being unable to perform cloth simulation does limit certain end results which users might expect.

With literally hundreds, if not thousands, of pre-rigged Poser and DAZ character models and objects available, the ability to instantly animate without needing to perform the mundane tasks of boning and managing mesh deformations is very attractive. To that end, Carrara has integrated a feature called Puppeteer. Without keyframing, users can pose and re-pose characters saving each

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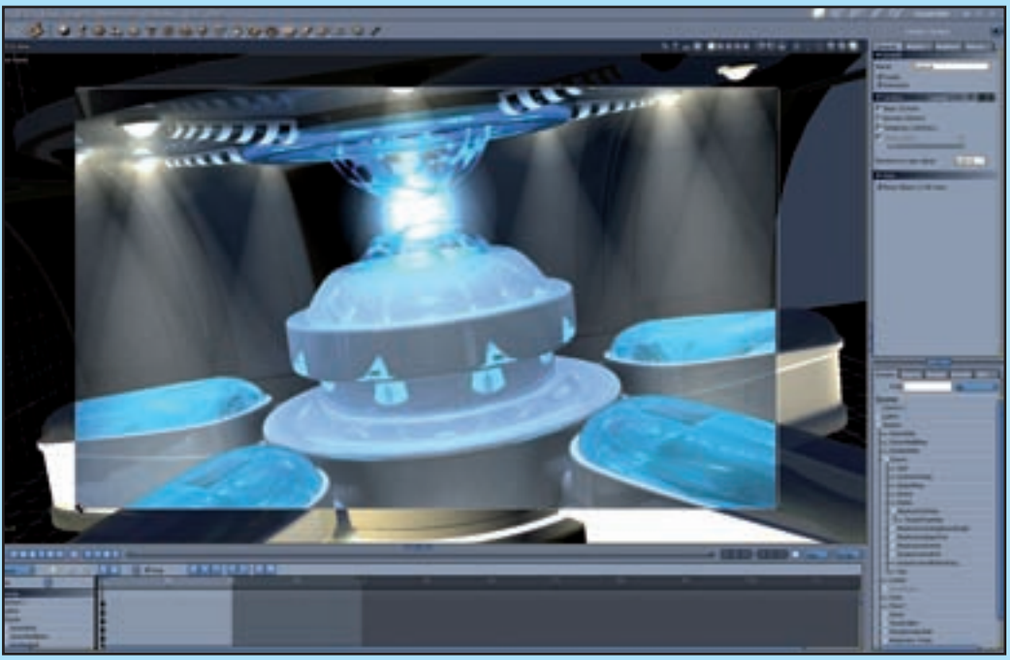
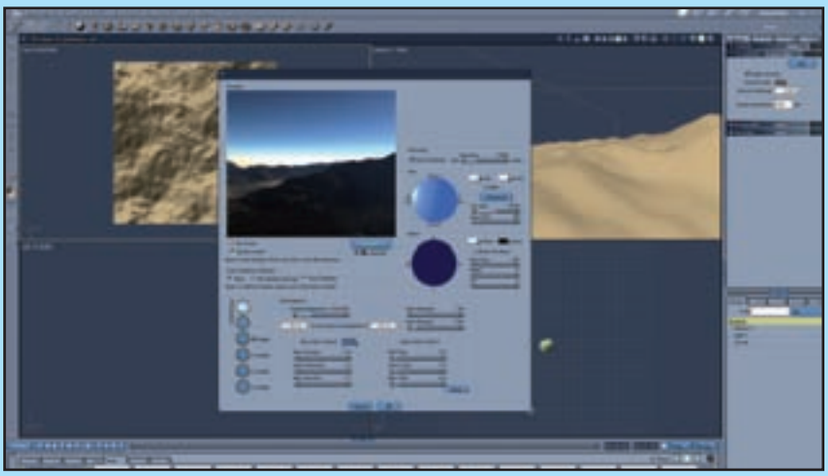


In addition to Carrara's volumetric lighting effects, the new IES profile lighting capability introduces greater levels of realistic bulb and cast light effects



The Realistic Sky Editor is where the new God Rays – light streaming between clouds – is enabled and controlled. Located in the Fog effects, simply turning on the effect and adjusting intensities is all it requires

pose as a marker on the grid interface of the Puppeteer. Then, moving the mouse between saved markers results in gently blended transitions from pose to pose. These movements can be keyframed for easy and quickly tweened action.

Additional lighting abilities have also found their way into Carrara's toolset. For added realism, IES lighting profiles can be added to lights which essentially convert your light into a real bulb with all of its patterns and idiosyncrasies – ideal for architectural rendering and interior views. Other lighting additions include conveniences like barn doors for Spot lights – just like stage lights – and the new God Rays feature for casting tranquil beams of light in outdoor scenes.

Carrara's exterior scene building has been enhanced also with additional control and options over the plant and vegetation generator. Better joining between branches and trunk areas plus a greater level of ease when it comes to adding custom leaves, fruit and other objects to plants are now available in the program.

There has also been a host of smaller additions and improvements including natively supporting Normal maps and workflow enhancements like the ability to actively edit conforming objects and clothing while on posed characters.

For users working with multiple software packages, Carrara has improved handling of FBX and COLLADA file formats – in addition to an already generous array of supported formats. Truly, Carrara is a Swiss Army knife when it comes to opening and working with CG content from other packages.

The good & the bad

- ✓ Effortlessly integrates with pre-rigged content
- ✓ Good renderer including GI and HDRI as well as painterly effects
- ✓ Comes with five machine render network licenses
- ✓ Powerful texture capabilities
- ✓ Hair, vegetation, terrain, polygon and spline editors
- ✗ No cloth physics
- ✗ No commercial render farms available

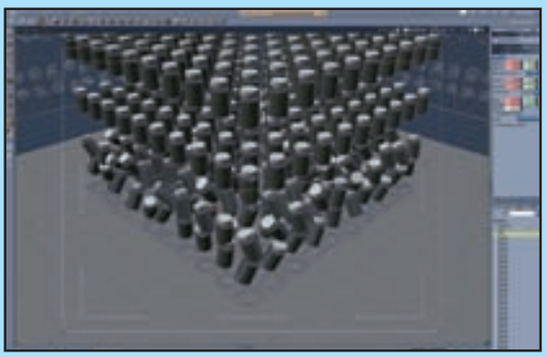
Essential info

www.daz3d.com
• $549.95
£365 (approx)

OPERATING SYSTEMS
- Mac OS X 10.3 or above
- Windows 98 SE or above

OPTIMAL SYSTEM REQUIREMENTS
- PC: 25MB free hard drive space
- 256MB RAM minimum
- OpenGL compatible graphics card with at least 128MB of onboard
- 32-bit graphics colour depth
- Mac: Power Macintosh running at 700MHz or above
- PC: Pentium III/AMD Athlon processor running at 700 MHz or above

The Bullet Physics Library has been integrated with Carrara allowing it to quickly create accurate physics effects



Our verdict

Features	10/10
Ease of use	8/10
Quality of results	9/10
Value for money	10/10

"Carrara 8 Pro does so much for such a small price, it's hard to find fault"

Final Score 9/10

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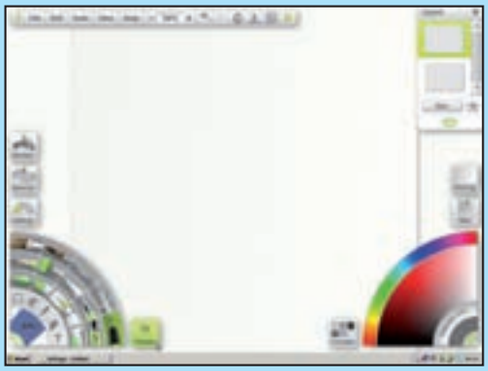
ArtRage 3 Studio Pro $80

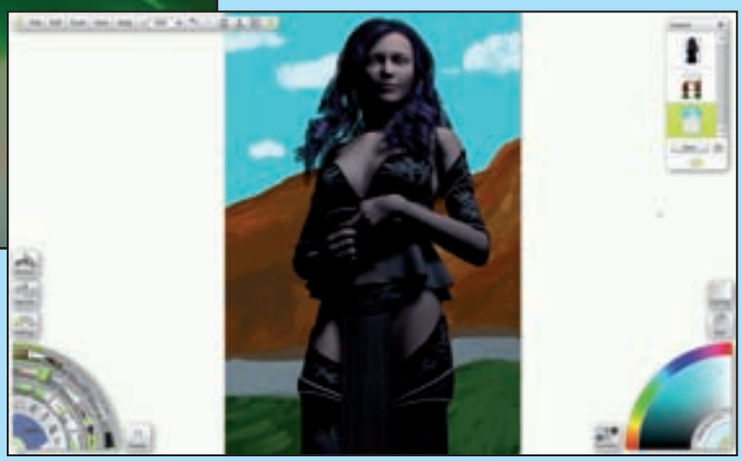
Give your renders an artistic finish by painting over them with a natural media program

ArtRage users have been requesting a Watercolor brush for ages and now it has finally been included!

> The longed-for Watercolor brush has finally arrived, along with surprise hit, the Gloop Pen



Spray-on Stickers to depict repetitive elements quickly and easily exist on special 'micro layers' for simple individual editing



Almost every 3D artist on the planet uses Photoshop, and if not that, then freebie GIMP, and many people use it to add painterly details to their renders or combine 3D objects with matte-painted backgrounds. Now, Photoshop is a great program, but for painting, Corel's Painter is much better. Both packages have professional price tags, which is why there was a market for a low-cost, natural media package like ArtRage. It originally featured an intuitive, tablet-friendly interface, fantastic real media reproduction and, of course, its low price. ArtRage 3 Studio Pro has upped all of those features, including (sadly) the price, retailing for over three times as much, coming in at $80. However, this is still significantly lower than its competitors by a long shot.

ArtRage has always been popular because it appealed to kids, grannies and everyone in between, thanks to its focus on painting tools rather than high-end editing capabilities. It didn't even have Copy/Paste, and though it's true that ArtRage shifted the user's focus away from technical trickery and back to painting, people who used ArtRage professionally found they had to mix it with other software programs to perform the tasks they needed. Well, no more – this version is aimed squarely at pro users, as evinced by its improved support of the PSD file-type and inclusion of must-have cutting, copying and transformation tools. Layers have also been given a makeover, with more blending modes and colour adjustments available for precise control. There are also new brushes – the longed-for Watercolor brush has finally arrived, along with surprise hit, the Gloop Pen. A new function called Stickers has been added to enable you to spray repetitive images like birds and flowers easily, and each Sticker exists on its own 'micro layer' so it can be moved and edited without affecting the surrounding Stickers. The addition of new tools means that the interface has undergone a subtle facelift, though it retains the intuitive radial and temporal menus so beloved of ArtRage users. And if you need a lot of tools open, the new Pods feature allows you to organise your workface in an ergonomic and elegant manner.

Reproduction of unique ArtRage effects like Metallic paint has also been improved even when you don't save in the software's proprietary PTG format, allowing you to take advantage of this program's core strengths while still being able to bounce your images in and out of other software programs if required. Though, in all honesty, ArtRage 3 Studio Pro is now perfectly capable of standing on its own two feet.

www.artrage.com

Our verdict

Features	8/10
Ease of use	9/10
Quality of results	9/10
Value for money	9/10

> This pro-quality update to ArtRage has increased its image editing functionality and introduced a range of useful new tools

Final Score 9/10

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Fantasy Separates Volumes 1-3 $19.95 each

Mix and match your fantasy outfits with a new range of gear from DAZ

The first volume in the range is the one that most obviously fits the fantasy tag. It's easy to fit for size and movement

The second volume on its own feels more like a fashion item, but then they can be mixed and matched

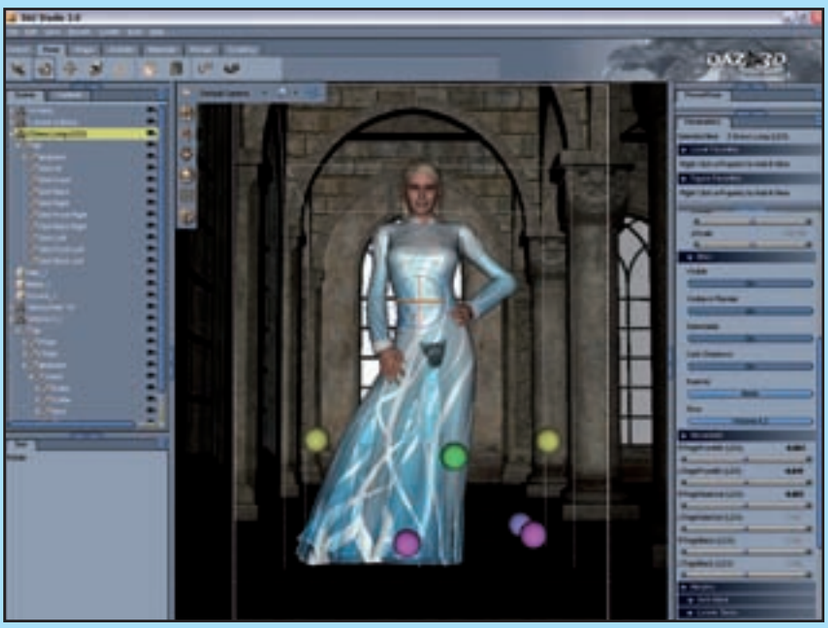
This is a new series of fantasy-oriented clothing items in the DAZ shop that are designed to be mixed and matched with other items. There are three volumes available so far with a base price of $19.95, which buys a two or three-piece outfit with a range of textures. There's also a set of new textures for each volume with each pack containing six alternative textures for your outfits. These have a base price of around $12.95, making it a cheap way of altering the look.

The first volume of separates contains a strappy top, wide midriff belt and a four-section skirt. There are morphs for different body types, the dress can be adjusted to fit and all four elements can be twisted and moved to fit with more action-based poses.

If Volume 1 was your traditional fantasy garb, Fantasy Separates Volume 2 definitely puts the sexy back into the range with an Asian-style jacket and a short dress. There are sleeve-style variants for the jacket while the dress has a wide range of movement morphs and style options. If there's any complaint about Volume 2, it's that the basic outfits don't look very fantasy-oriented. There's a wide range of colours from Asian-themed to blue and pink, but it's all more Kate Moss than Galadriel. There are adjustments for loosening the clothes for body types, some body morphs and also movement adjustments, which help as the dress is so short. In fact, it's the alternative textures for this outfit that really give it some life, but it's still a fashion collection.

So on to the finale – Volume 3 – and hemlines are down this time. This is a more classy two-piece with open-heart jacket and floor-length dress. Think Victorian gothic and you'll be on the right track. Mind you, at least one of the textures for the dress has a transparent bottom half so it isn't *that* demure. The other point to note is that this outfit comes with handles to aid fitting – which at least make it quicker to identify which piece you need to adjust to cover gaps, though of all the outfits, this was, curiously, the most tricky to fit.

There's certainly something here for everyone, the point of the series being that they can be mixed and matched as there are settings to fit items over other ones. Full marks to artists Xena and Sarsa for creating them and to the other artists for producing a good range of alternative textures.



Here the dress for Volume 3 has large handles to aid fitting – good job really as it's the hardest to get right

www.daz3d.com

Our verdict

Features	8/10
Ease of use	8/10
Quality of results	8/10
Value for money	8/10

"This new DAZ series offers a nice collection of outfits with interchangeable elements that are relatively easy when it comes to fitting"

Final Score 8/10

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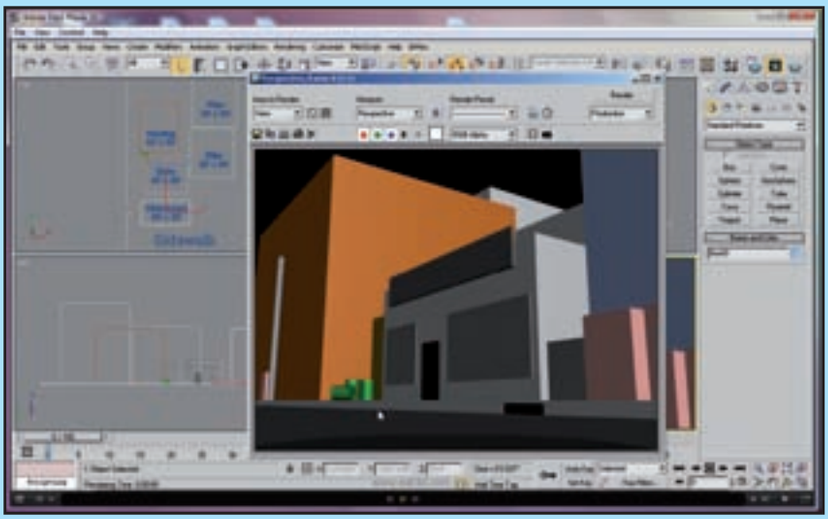
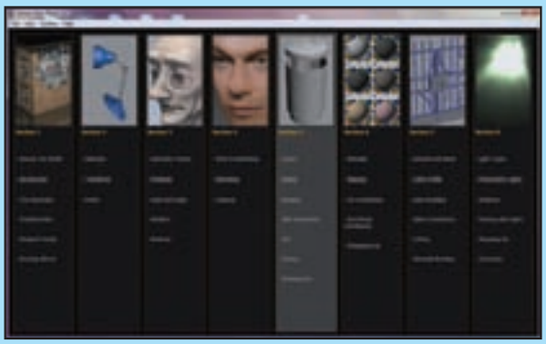
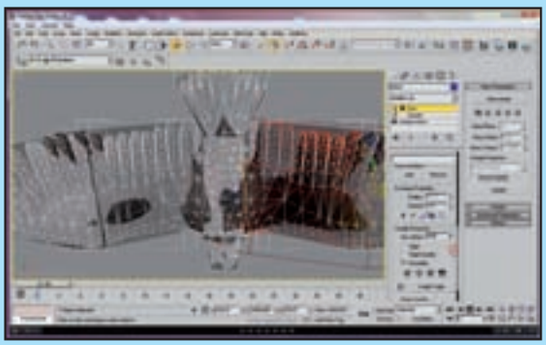
Eat 3D: 3ds Max 101 $64.95 ($59.95 download)

A full set of tutorials covering all the main areas of 3ds Max





The tutorials are loaded from a central application, so you can easily find the section you're after



The content of the package takes you from your first steps in navigating 3ds Max right through to complex subjects like rigging characters

If you're new to 3ds Max, learning the package can be pretty daunting.

Eat 3D Training offers a substantial set of tutorials covering everything needed to take you from being a complete Max novice to a level where you're able to begin to use the package professionally.

The tutorials come on three discs – two containing the basic lessons and a third bonus disc focusing on the new features in Max 2010. Each disc loads up with a simple selection page listing what you'll find in each section. The lessons themselves are videos entirely consisting of screenshots. They range between 5-25 minutes in length.

Each lesson is divided into logical sections and you can jump instantly between them by clicking on the chapter numbers at the bottom of the screen. The audio is well recorded, the resolution high and the frame-rate decent. Short intro stings are used to break up the chapters so you know what's coming when. However, the production of the tutorials isn't any more advanced than that. It's high quality, but fairly basic.

Comprehensive scene files are provided including versions of each scene for all parts of the tutorials, so you can jump in at any point and play with the same scenes that the narrator is discussing. Practical, real-world examples are used throughout to describe the various techniques and concepts, so you're never far away from seeing how to turn the theory into practice.

Disc one takes you through the basics of Max. It includes navigation and selecting objects. It teaches you how to create and modify primitives, and use extrusions, lathes and lofting to produce basic models. It also deals with materials, lighting and rendering. Tutorials here are aimed at the absolute beginner, but they're thorough enough that there will be techniques you've missed even if you've been using Max for years.

Disc two moves on to more advanced topics. There are lessons on texturing and rigging, animation, cloth, particles and hair. There's a section devoted to mental ray, and another covering subdivision modelling. These tutorials are a little more tricky than those found on disc one, so we recommend you fully absorb the first disc before moving on, as the second disc will make you work a little harder.

Overall, there's a lot of material here – probably enough to keep a dedicated student busy for weeks – and it's a good starter course. However, there's also a lot of Max that isn't covered – particularly in the detail. You won't find advanced use of materials covered, or sophisticated character animation, or complex modelling.

In short, this is about as thorough a grounding in the 3ds Max package as you're likely to find anywhere. It's a great introduction to a complex package, however, it will make you a competent user, rather than an expert.

www.eat3d.com

Our verdict

Features	8/10
Ease of use	9/10
Quality of results	8/10
Value for money	8/10

> If you've spent £2,500 on Max, this is a small price to pay to get up to speed with it

Final Score 8/10

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Ten24 photorealistic male model $79

A tutorial focusing on photorealistic texturing for the human figure

The initial photo for this tutorial sets the bar pretty high. The aim is to produce a photorealistic human figure using LightWave, and the result – by any standards – is excellent. The final render is amazingly real, and any artist would be happy to have produced it.

The tutorial contains project files, models and scenes, but this is really a tutorial about texturing and materials, so the high-quality reference images and textures are the real gift in this package.

Aside from these, the video tutorials themselves are a series of simple screenshots, combined with a relaxed and articulate narration by James Busby. There's no library file to link or play the videos, and no convenient chapter points such as those you'll find in the Eat 3D tutorials. However, such complexities are not really needed here. There are only ten videos in the package and they follow on pretty logically from each other.

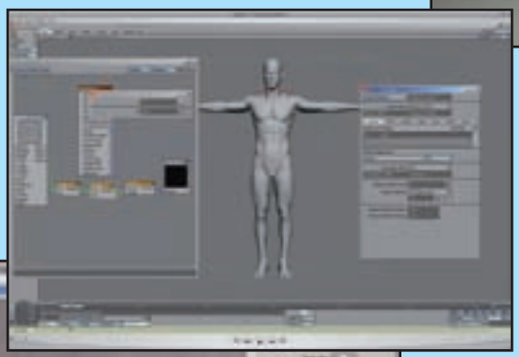
The tutorial assumes that you know your way around LightWave already (which, if you intend to create photorealistic images in it, you should). It also assumes you can create a realistic basic model – and starts by providing one with a Normal map generated in ZBrush to work with.

It's advertised as a LightWave tutorial, but the techniques aren't specific to LightWave. There are numerous Photoshop tips here, describing how to use the Liquify tool to stretch and distort reference photos to create various texture projections, and how to turn the resulting textures into Specular, Bump and other maps. You'll also find a section on using ZBrush to improve the seams of your textures.

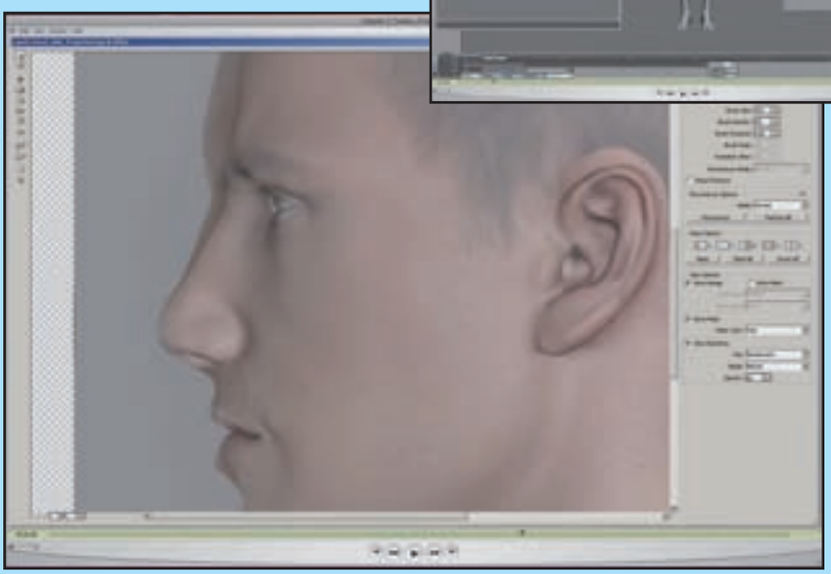
Even the tutorial on shader lighting (the most LightWave-specific of the lot) can be pretty easily converted if you're using 3ds Max or Maya, so really, whatever 3D package you use, this is a valuable guide if you want to create realistic human textures.

All in all, this is a fascinating insight into photoreal texturing. It does underline the fact that the finish of your texture is highly dependent on the quality of your reference material and models, but that said, the materials are all provided for this model. Since the price for the tutorial is just $20 more than buying the model on its own, it's definitely a worthwhile investment.

The results of this tutorial speak for themselves – a virtually flawless piece of photoreal rendering



The tutorial starts with the modelling complete and a Normal map already created in ZBrush



Most of the tutorial involves working on the textures in Photoshop and combining them in LightWave

www.ten24.info

Our verdict

Features	9/10
Ease of use	8/10
Quality of results	8/10
Value for money	9/10

"Photoreal human rendering is something all 3D artists crave. This tutorial won't get you there on its own, but it will help"

Final Score 8/10

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Inside guide to industry news, studios, expert opinion and education

> We knew that with Split/Second we had to bring something new and innovative to the table in order to stand out

Paul Ayliffe from Black Rock Studio talks about *Split/Second: Velocity*. Page 102

102 Studio access

Split/Second: Velocity

We catch up with Paul Ayliffe from Black Rock Studio to find out how the team managed to add spills and thrills to another high-powered racing game

98 News

Industry news

New products from ArtVPS, as well as the latest details about affordable Autodesk software for students, the arrival of 3D PCs and the regular help column from Escape Studios

100 Insider interview

Neil Blevins

Discover what it takes to become a technical director at Pixar and work on some of the coolest and best-loved animated movies ever made!

104 Uni focus

FX School

The FX School in Mumbai, India, is dedicated to arming its students with the skills needed for a career in the VFX industry. We find out how...

inside

Split/Second: Velocity
Promo render by RealtimeUK for the Black Rock Studio game
Website www.blackrockstudio.com

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Improve renders with Shaderlight

ArtVPS offers improved performance for Max and a free beta version for SketchUp with new plug-in releases

A

A The parameters of 3ds Max or Shaderlight material settings can be adjusted instantly, even on final images

Expect up to 50 per cent faster rendering in 3ds Max with the latest Shaderlight plug-in from ArtVPS. The first version launched in December 2009, but this release has optimised core rendering technology, which means better performance and reduced memory requirements. Users can now render bigger and have greater interactivity when making 'MELT' changes.

MELT is a term that ArtVPS uses when changes are made to materials, environments, lights or textures without re-rendering. With Shaderlight's technology rendering intelligent pixels that understand where they fit in a 3D image, and what to do if something changes, it means that the information in each pixel can be used to update the image without the artist needing to re-render when a change is made to materials, environments, lights or textures. The results are seen in real-time without compromising the image quality.

> "The results are seen in real-time without compromising the image quality"

"Building on the success of the first release, users will see a noticeable difference with the improvements made," ArtVPS marketing director Kate Marshall has said. "The ability to only partially re-trace elements of a scene affected by a change optimises Shaderlight's interactive workflow further and will deliver significant productivity and creativity improvements for 3D artists."

ArtVPS has also announced the beta version of Shaderlight for SketchUp, which is the second product in the family that enables artists to create photorealistic images from Google SketchUp and SketchUp Pro. The simple tools and workflow aim to fit in seamlessly with the SketchUp philosophy, allowing for quick and simple adoption of the plug-in. The full release will be launched later this year, and will offer advanced lighting features and support of the MELT functionality.

You can try Shaderlight for 3ds Max for a free 30-day trial, or buy it for the revised price of just $450. The beta version of Shaderlight for SketchUp is also now available as a free download. For further information, visit www.artvps.com.

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UK homes enter the third dimension

Enjoy 3D content at home with the 3D PC

B NVIDIA offers a range of 3D Vision ready bundles, monitors, 3D Vision glasses kits and more

It's happened – 3D PCs have arrived in the UK. The term '3D PC' can be applied to a desktop or notebook PC that includes a pair of 3D glasses, a 3D-capable display and a graphics processor – such as the GeForce GPU from NVIDIA – capable of delivering high-definition imagery to the 3D display. With a 3D PC that meets these minimum requirements, you can immerse yourself in 3D games, movies, images and photos – all in the comfort of your own home.

In the UK now, customers are being introduced to a range of 3D PCs currently being debuted by a host of manufacturers, including Alienware, ASUS, Dell, Microsoft, Toshiba and others – many of which are working with NVIDIA to offer quality 3D experiences to the user.

With so many leading manufacturers on board the 3D revolution, it should be possible for consumers to find the right platform for the right budget, with well-known and trusted UK distributors such as MESH, Novatech, Overclockers and Scan now working to bring 3D PCs to the home environment.

Autodesk software made affordable

Students benefit from the Autodesk Educational Creative Suite

Get Autodesk software with permanent licenses and no watermarks without spending a fortune. 2011 versions of 3ds Max, Maya, MotionBuilder, Mudbox, SketchBook Pro and Softimage have been packaged up in the Autodesk Educational Creative Suite for students – all for less than £150. With these being six of Autodesk's most popular – and arguably, most useful – products, users are given the opportunity to utilise industry leading software to create 3D and visual effects without the financial worries that these pricey packages traditionally demand.

This student bundle is now shipping. Visit the Autodesk website for more information at **http://usa.autodesk.com/industries/education.** Students in the United Kingdom can pick up this great package from Escape Studios for just £125 plus VAT – visit **www.escapestudios.com/en_GB/technology-store.html.**

esc IT helpdesk

The industry's most frequently asked questions get answered by the experts

Dan Young
Engineering manager

Company Escape Studios
Company website
www.escapestudios.com

The Escape Studios technology team receives all kinds of technical questions from clients and studios that want to get the best out of their hardware and software for maximum performance. In the IT helpdesk, we find out some of the top questions and answers that come up. Share the knowledge, we say!

What is 3D printing technology and how can it be used?

Dan Young: 3D printing is popping up just about everywhere. At the moment it's most popular in engineering design, as well as design visualisation. Typically people are using 3D printing to create physical versions of software-generated models. It's still quite an expensive technology so the smaller studios are having trouble using it – although the price is dropping daily. It's a great quality control/assurance tool, particularly for digital architecture, product design, visualisation and anyone who could benefit from the demonstration of a physical version of digital geometry.

The collectable toys industry is another sector benefiting from 3D printing. Previously, vinyl figures were difficult to produce, but with 3D printing it's becoming increasingly easy to produce in high volumes. Prototyping in all its forms would also benefit from the ability to print, as well as applications in medicine and many other fields. It does what it says on the tin: prints objects. But it will be some time before these become cost-effective for everyone.

If you have a technical question for the Escape Studios experts, email it to **lynette.clee@imagine-publishing.co.uk**

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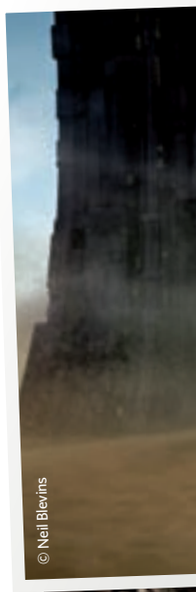
A Inspired by a Groboto doodle, this piece is one of my more narrative in nature

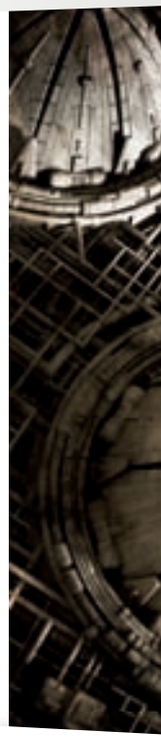
Industry insider

Neil Blevins

Technical director

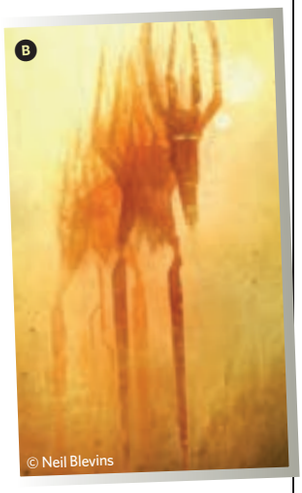
Each issue, **3D Artist** finds out how people in the 3D industry got their jobs and what you need to know to get a foot in the door yourself





About the insider

Job Technical director
Education BFA Design Art
Company website www.pixar.com
Personal website www.neilblevins.com
Biography
Neil started off painting and drawing traditionally, and then got into 3D graphics while still living in his home country of Canada. After getting a BFA in Design Art, he moved to Los Angeles where he worked for Blur Studio. He now lives in San Francisco and has worked as a technical director for Pixar since 2002. In his spare time, he makes sci-fi 3D/2D hybrid artwork, author tools, and writes art-related lessons and tutorials for his website.



B My goal was to blind you with light and dust, and from the chaos, a figure emerges

From Blur Studio in Venice, California to Pixar Animation in San Francisco, Neil's CV alone is enough to enthuse any budding CG artist. Doing videogame cinematics, feature and ride films and commercial work for Blur, the company was much smaller when he joined than how we now recognise it. Back then almost everyone was a generalist, so he tended to work on everything in a shot, from the original modelling to the final composite. Learning so much from his time at Blur, Neil decided in 2002 that is was time to break free from LA, and he applied to Pixar. Luckily, at the time, they were looking for someone with his skills for a role on *The Incredibles* and he was fortunate to get a job offer. Eight years on, as Neil wraps up his work on *Toy Story 3* and gets ready for *Cars 2*, 3D Artist talks to him about his role as technical director at Pixar Animation Studios.

3D Artist: *Can you briefly sum up your current role at Pixar Animation Studios?*
Neil Blevins: Technical director is a bit of a misunderstood term, as you don't always need to be very technical, and the only person you usually direct is yourself. At Pixar, a TD could be anything from a modeller, to a shader artist, to a particle sim person. Some companies give these jobs different titles, but at Pixar, all of these people are considered TDs. Currently, I work in the sets department, doing a combination of modelling and shading for the various environments and props in a film.

3DA: *What is your educational background and how exactly did it help you break into the industry?*
NB: I have a fine arts background in Design Art, getting my BFA at Concordia University in Montreal, Canada. Very few universities taught any sort of 3D courses back then, so my degree was mostly drawing, painting, sculpture, etc – all art fundamentals that I could apply to any media. So my education taught me many things about art theory, but as far as 3D goes, I am self-taught, and never took any classes.

3DA: *What are the tools that you use on a daily basis in your job, and why are they essential to your workflow?*
NB: I mostly use Maya for modelling, as well as a few other modelling packages for specific tasks, PRman for rendering, Slim and Photoshop for shading/texturing, and Pixar's proprietary 3D package Marionette. Since I am a generalist, I tend to move between many different pieces of software to arrive at my final result.

3DA: *Tell us about the current projects being produced by Pixar Animation Studios. What is your role on these?*
NB: Pixar always has several films going on at a time; our current slate includes *Cars 2*, *Brave* and *Monsters Inc 2*. After a brief stint on *Cars 2* character shading, I am now on the sets team modelling and shading the environments for the film.

3DA: *What was your role on* Toy Story 3*?*
NB: I only worked on the film for a few weeks. Mainly I did the final modelling and shading for the interior of – spoiler alert – the pig ship at the beginning of the film.

3DA: *Is* Toy Story 3 *the first stereoscopic 3D film production you've worked on at Pixar Animation Studios? What kind of changes has stereo 3D brought about in the production pipeline?*
NB: *Up* was actually the first stereo film I worked on. From a sets perspective, there isn't much of a change between doing a stereo and mono film. Most of the stereo work involves the layout and rendering teams, and we thankfully have some super talented stereographers working here at Pixar who handle that side of things.

3DA: *With* Toy Story 3 *ranking as the highest grossing opening weekend for a Pixar film, what do you think it is about this latest instalment that is captivating audiences?*

portfolio highlights

Neil has worked on a number of animated adventures, including:

2010 *Toy Story 3*
2009 *Up*
2008 *WALL•E*
2006 *Cars*
2004 *The Incredibles*
2002 *Fellowship Of The Ring* videogame

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C *WALL•E* was a massive hit for Pixar, winning a Golden Globe and Academy Award and more

D *The Incredibles* was one of Neil's first projects when he was taken on by Pixar Animation Studios

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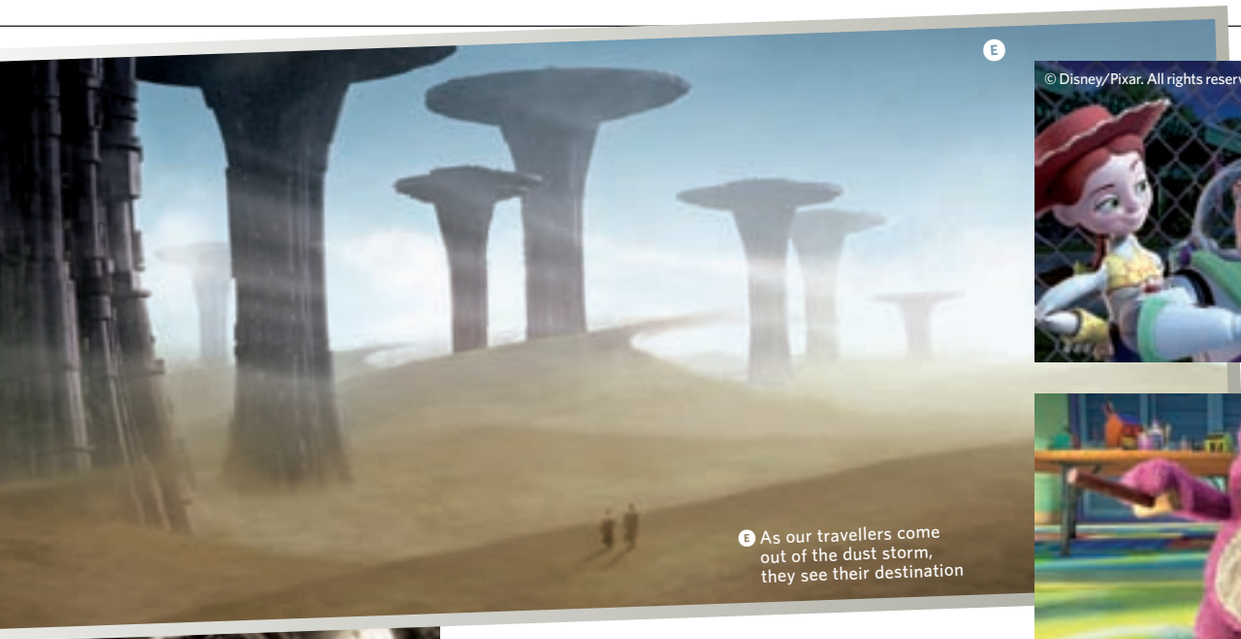

E As our travellers come out of the dust storm, they see their destination

© Neil Blevins

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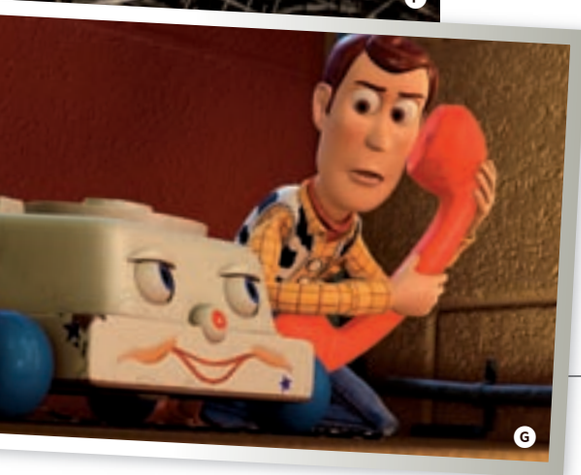

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NB: Well, two reasons: first these are characters so many people grew up with, and they want to visit them again. And second, the story team managed to come up with another tearjerker – I certainly got choked up the first time I saw it. The reviews have been overwhelmingly favourable so I think people overall just want to see characters they love in a great film, and I feel *Toy Story 3* delivers.

3DA: *With 3D technology ever evolving, how did the latest technological advancements help production on* Toy Story 3*, and what were they?*
NB: The key was to make sure the film wasn't fancied up so much that you lose the *Toy Story* look. Technology has advanced tremendously in the last ten years: we have stuff like Global Illumination; you can create environments of tremendous size and complexity; characters can be animated in more subtle ways. But we didn't want to do something that didn't feel like it fit with the first two films, and so a lot of creative choices were made to keep the essence of the original *Toy Story* look, to make it more lush but without looking distractingly different.

3DA: *Having worked on a whole host of CGI film productions under different roles during your career, what have been the key advancements you've witnessed over the years?*
NB: Well, the popularisation of raytracing for one, and all of its associated technologies (Ambient Occlusion, GI, caustics, etc); the rise of digital sculpting packages such as Mudbox and ZBrush; Wacom tablets. I even remember when the mouse finally started catching on – that totally changed my workflow!

3DA: *Do you work with different software and hardware outside of work, on your personal projects? If so, what do you use and why?*
NB: At home my primary 3D package is 3ds Max; Mudbox for sculpting; Photoshop for painting; and I render using the Brazil renderer. Maya is a powerful piece of software, but is lacking a number of tools that I have with Max. I also really like Max's proceduralism. In many ways, I feel Max is sort of a nice middle ground between a fully procedural approach and the 'just do what I asked you to right now' type of workflow. I use Brazil because the people who wrote the software are artists themselves, and so they wrote it in such a way that it's really intuitive and easy to use without a steep learning curve. I'm not really a hardware person, so as far as I know there's no real difference between my work computer and home computer. I do have a Cintiq at home, though, which I love for painting.

> "Technology has advanced tremendously in the last ten years: we have stuff like Global Illumination; you can create environments of tremendous size and complexity; characters can be animated in more subtle ways"

F Inspired by a pinecone, this is a reworking of a much older image

G Everyone's childhood favourite, the retro Chatter Telephone makes an appearance in the latest *Toy Story*

H The plot in this latest instalment from Disney/Pixar sees Buzz reset to his original, deluded space ranger self

I The Lots-o-Huggin' Bear is a new character who leads a warm welcome at Sunnyside when the toys arrive

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Studio Access

Split/Second: Velocity

Duncan Evans talks to Paul Ayliffe, studio art director of Black Rock Studio about the high-speed game title

Black Rock Studio, formerly known as Climax Racing, was established in Brighton, UK, in early 2000 and is one of the industry's premier racing studios. Now part of Disney Interactive Studios, an affiliate of the Walt Disney Company, Black Rock Studio produces original racing games

www.blackrockstudio.com

Project *Split/Second: Velocity*
Description Inspired by the Hollywood summer blockbuster, *Split/Second: Velocity* is an intense arcade action racing game with a unique twist on the genre. Set within the fictional world of a big budget reality TV show, competitors battle for first place in an environment that is rigged to blow. Players can trigger devastating events with epic proportions that can dynamically alter the course of the very track they are racing on. In *Split/Second*, every lap is different
Country UK
Publisher Disney Interactive Studios
Software used Maya, modo, Tomcat (proprietary technology), Havok

Key people

Paul Ayliffe
Studio art director

After a rash of racing hits, Climax Racing, established in 2000, was bought out by Disney Interactive Studios in 2006. Disney wanted to branch out into the racing genre and Climax's *MotoGP* and *ATV Offroad Fury* games showed the company had a high pedigree. The newly acquired studio was relaunched as Black Rock Studio and it set about development of its first new franchise, the arcade action ATV racer *Pure*. Released to critical acclaim in September 2008, *Pure* set the standard on which to build upon. *Split/Second: Velocity* was to be the next big project with Disney and set Black Rock on a path of even greater creative and technical challenges. Starting out with a relatively small team, the studio went on to form two teams made up of approximately 150 people. Black Rock has 45 artists including a central previsualisation team, 12 designers and seven producers.

There were plenty of driving and racing games around, so what was going to make *SSV* different? Paul Ayliffe explained, "As a studio we have a tremendous amount of admiration for other dev teams in the UK and across the world. Everyone is pushing incredibly hard to raise the bar. We knew *SSV* had to bring something new and innovative to the table in order to stand out. That big idea was to give the player the ability to use the environment as a weapon – the Hollywood-inspired explosive events in *Split/Second* that we call Powerplays."

> "We knew that with Split/Second we had to bring something new and innovative to the table in order to stand out"

Maya plays a big role in the animation and Powerplay pipeline. Animation can be easily exported and brought into Black Rock's proprietary toolset, Tomcat. From here, all manner of layered and choreographed VFX sequences can be assigned within a timeline-style editor. *SSV*'s cars were initially constructed and textured in modo and then brought into Tomcat for shading and a host of other set-up tasks. Environments were constructed with a combination of Tomcat, modo, Maya, ZBrush and Photoshop for texturing. Artists have a level of flexibility with what tools they use as Black Rock supports an OBJ and FBX import/export path.

Initially, there were some teething problems with exporting animation data – primarily as the pipeline was still in development – but things soon stabilised and allowed for a reasonably flexible and iterative workflow. Paul continued, "For the most part, we hand animated as this allowed us the creative control we required. However we did fill in the gaps with some aspects of procedurally generated

Portfolio highlights

These are some of the projects that Black Rock Studio has worked on

2010 *Split/Second*
2008 *Pure*
2007 *MotoGP'07*
2006 *ATV Offroad Fury 4*
2005 *MotoGP 3*
2004 *ATV Offroad Fury 3*
2003 *MotoGP2*

A In-game shot of the dry docks ship launch's route-changing Powerplay in action

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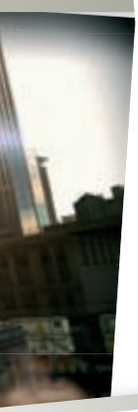

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animation. Some of this was baked back to a ridged body rig while other more 'interactive' aspects were kept live within our runtime physics engine."

SSV features an intense screenload of action, but keeps the frame rate high. Paul was pleased with the results. "When I sit back and play *SSV* it amazes me that we can throw as much as we do around on screen and still hold a solid frame rate. The game makes it look easy, but the reality involved a gargantuan effort by the entire team. Our engine programmers really excelled too, developing some innovative techniques for maximising performance on PS3 and Xbox 360 hardware."

So now we get the age-old balancing act. Detail or speed? Which took priority? Paul revealed, "In a racing game like *Split/Second* the sensation of speed is incredibly important. But so too is the level of fidelity required to ensure the worlds you race within are believable. It's common sense really but providing you spread your budget wisely, it means you can actually have better fidelity where it's important. High frequency detail close-up, near and around the player, enhances the sensation of speed."

If there's one set piece that deserves a mention, it's where the plane crashes around the player. This was one of the very first big moments Black Rock developed for the E3 build in 2009. Around this time, the team was still heavily involved in prototyping and the scene did present a large number of technical and creative challenges initially. However it wasn't to be the largest or most complex moment in the game. By the time they completed production, they'd gone on to produce much larger moments. For example, the Downtown train derailment route-changer is approximately 1.8km in length and can physically change the layout of the racetrack.

The game is littered with explosions but these form just a small part of the Powerplays, which require a wide range of expertise. Designers and artists start with a concept that's fleshed out as a storyboard and then prototyped as a grey box model with some rudimentary animation within Maya to decide on the sequence's timing, footprint on the track and any playability issues. Once the prototype is signed off, it's passed to the Powerplay World artists to work into a production-ready asset, adding detail to the model. Paul told us: "The fully detailed Powerplay asset then makes it to the animation team where they prep it for destruction. Fracturing tools are used to break up the model into various components so they can be rigged and animated."

The VFX team are usually the last in the production line. A Powerplay can then be staged and layered with multiple particle systems for added detail and visual impact, eg debris, fire, smoke, etc. This helps give everything a choreographed appearance, much like that of a Hollywood action movie.

Of course, when you talk about Hollywood movies, you have to focus on the game's cut scenes. These were all driven in real-time by the game engine. Paul revealed, "We had to develop an extensive camera system that would allow our artists to author sequences in real-time, with the added ability to rewind time so that we could cut on or before the action and really showcase these moments to the player for added sense of reward when successfully triggering a Powerplay."

The ultimate goal for Black Rock with *SSV* was to distil the thrill of the best Hollywood action sequences and repackage it as one cohesive, immersive and cinematic racing experience. Paul concluded, "We had a huge amount of fun developing this title and I think that sense of fun really shines through in the final product."

B The Downtown Wharf explosion in mid sequence. This in-game shot shows the layered particle effect systems working in tandem with the Powerplay animation. It really encapsulates the epic scale of what we set out to achieve

C Promotional render by RealtimeUK showing a muscle car being chased by a route-changing Powerplay

D Exploded view of a typical *Split/Second* muscle car. Image shows all the internal details required for the game's damage system

E In-game shot of the Downtown train derailment Powerplay in action. The full length measures around 1.8km

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+ The best courses and freshest talent from universities around the globe...

FX School

Intensive programmes at this high-end institute in India produce graduates who are polished and ready to start a career in the VFX industry

FX School in Mumbai is the first institute in India to have a production-ready environment. Dedicated to ensuring that students don't need to wait before they can learn and practise, the facilities boast a 1:1 computer-to-student ratio, with all the classrooms sporting Mac hardware. The professional studio spaces coupled with a café-lounge and digital art gallery for artists to hang out in, offer an all-round, inspirational learning environment.

The 'digital content creation' courses provided by FX School cover the fields of animation, visual effects, digital filmmaking and photography. Designed for students who want to graduate at the top – as industry-ready professionals – the courses are taught by a faculty of accomplished professionals with practical industry experience who keep lessons current with what's happening at the cutting-edge of the VFX world. Throughout their studies, students are encouraged to discover specialist skills and build upon them, while personalised career counselling keeps focus on life after graduation.

Courses are structured to save students both time and money. The Foundation in Digital Media course is a three-month programme covering digital photography, motion graphics, animation and digital painting to give students the opportunity to get hands-on experience from which to choose their specialisation. There are several nine-month diplomas for students to move on to, meaning students can take the foundation plus a diploma, and complete both within just 12 months.

The Diploma in Animation and Visual Effects encompasses a broad range of lessons. Covering everything from environment modelling, character modelling, texturing and shading, to animation, compositing, matchmoving and camera tracking, students use industry standard Maya, After Effects, Nuke, Shake and Fusion to get the best grasp of the latest technology and techniques. The Diploma in Visual Effects & Digital Filmmaking course also makes use of software such as After Effects, Shake, Fusion and Nuke, including Premiere Pro and Final Cut Pro in the pipeline, to teach keying, compositing, matchmoving and camera tracking, as well as storytelling, screenwriting, cinematography and editing. With both of these diplomas, students produce a VFX showreel, which arms them with the evidence to demonstrate their talents to employers after they have graduated.

As well as diplomas for students looking to break into the VFX industry, FX School also offers courses and workshops for pros who might be looking to brush up on their skills. An exclusive partnership with fxphd, the online VFX training website for professionals, gives even further opportunity through the FX School/fxphd Advanced Certificates. The director at FX School – Abhyudaya Morarka – has commented, "Our partnership with fxphd is yet another solid step toward realising our mission of providing the best CG/VFX edu-training in India and becoming the de facto Gold Standard in the industry."

Visit the FX School website at www.fxschool.in for further information and to find out how the school is working with fxphd to take VFX education in India to the next level.

> "Our partnership with fxphd is another solid step toward realising our mission of providing the best CG/VFX edu-training in India"
>
> **Abhyudaya Morarka,** director, FX School

Course details

Name Digital Media
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Name Animation and Visual Effects
Award Diploma
Length Nine months
Fees $7,000 USD (plus local taxes)

Name Visual Effects & Digital Filmmaking
Award Diploma
Length Nine months
Fees $7,000 USD (plus local taxes)

ENTRY REQUIREMENTS
Three-month Foundation in Digital Media or a Faculty Waiver*

***FACULTY WAIVER:** The Faculty Waiver comes into play when the head of the department evaluates prior experience and skills of the candidate and decides that the candidate does, in effect, meet the prerequisites for the course

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A

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A Rajnish Desai
Course: VFX & Digital Filmmaking
Time taken: One week
Software used: Photoshop

B Aaron Hernandez Varela
Course: VFX & Digital Filmmaking
Time taken: Four days
Software used: Photoshop

C Viswanath Ravi Kanth
Course: VFX & Digital Filmmaking
Time taken: One week
Software used: Photoshop

D Muthulakshimi Vylasini Seetharaman
Course: VFX & Digital Filmmaking
Time taken: Five days
Software used: Photoshop

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Uni focus

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F

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G

E Pabitra Kumar Panda
Course: VFX & Digital Filmmaking
Time taken: One week
Software used: Photoshop

F Suraj Kshirsagar
Course: VFX & Digital Filmmaking
Time taken: Ten days
Software used: Photoshop

G Nishant Shinde
Course: VFX & Digital Filmmaking
Time taken: Five days
Software used: Photoshop

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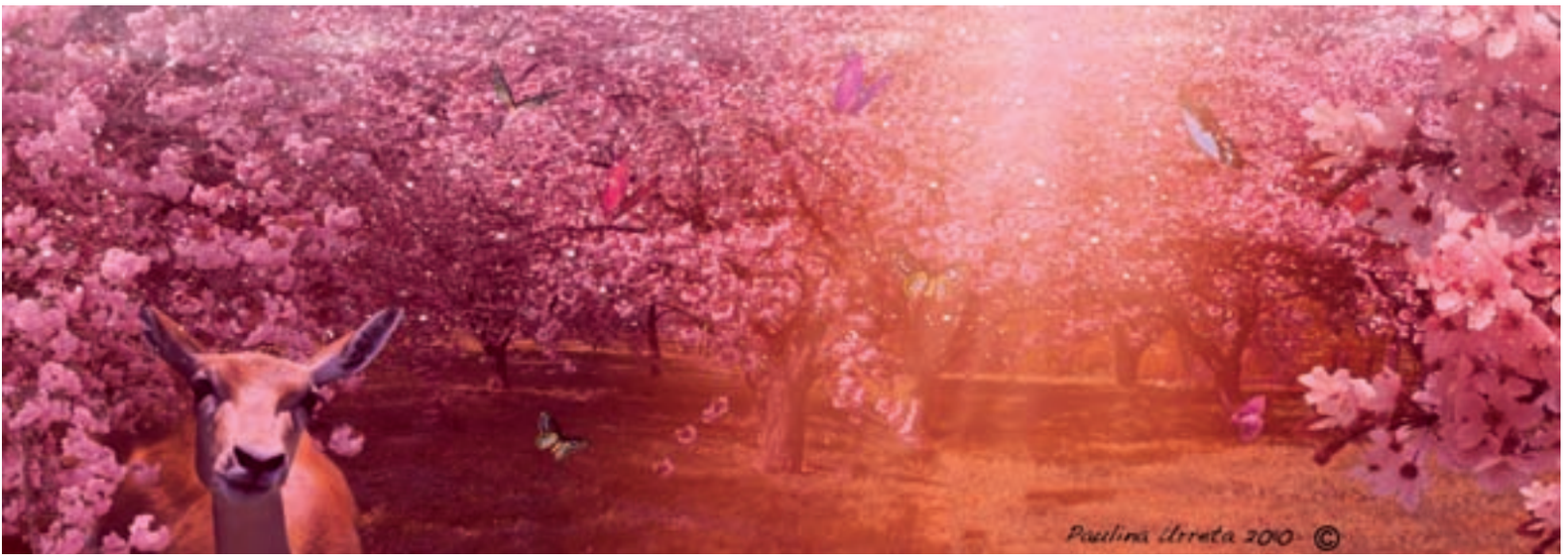

I

H Harshal Bhaware
Course: VFX & Digital Filmmaking
Time taken: One week
Software used: Maya, Photoshop

I Paulina Urreta
Course: Visual Effects
Time taken: One week
Software used: Photoshop

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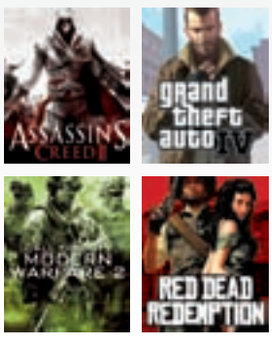

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